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Site Inspection Report
for
Nethery Landfill
Dallas, Dallas County, Texas

Contract No.: 68-W6-0013
TDD No.: S06-99-03-0001
PAN: 080801SIXX

NOVEMBER 1999

Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 6
1445 Ross Avenue
Dallas, Texas

ecology and environment, inc.
International Specialists in the Environment
1999 Bryan Street, Dallas, Texas 75201
Tel: (214) 245-1000, Fax: (214) 245-1001

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List of Acronyms

BNA	Base Neutral Acids
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
cfs	cubic feet per second
CID	Criminal Investigation Division
CLP	Contract Laboratory Program
COC	chain-of-custody
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
ESI	Expanded Site Inspection
HRS	Hazard Ranking System
ISE	imminent and substantial endangerment
NFRAP	No Further Remedial Action Planned
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NWI	National Wetlands Inventory
PAH	polynuclear aromatic hydrocarbons
PCBs	polychlorinated biphenyls
ppb	parts per billion
PPE	Probable Point of Entry
SAM	Site Assessment Manager
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
SQL	sample quantitation limit
START	Superfund Technical Assessment and Response Team
TAL	Target Analyte List
TCL	Target Compound List
TDL	target distance limit
TNRCC	Texas Natural Resource Conservation Commission
TPH	total petroleum hydrocarbons
VOA	volatile organics analyses
VOC	volatile organic compounds

1 Introduction

Pursuant to Contract No. 68-W6-0013, Ecology and Environment, Inc. (E & E), the Region 6 Superfund Technical Assessment and Response Team (START) contractor, was tasked by the United States Environmental Protection Agency (EPA) to conduct a Site Inspection (SI) at the Nethery Landfill site (CERCLIS # TX0000605190), located in Dallas, Dallas County, Texas.

1.1 Site Inspection Objectives

An SI is the initial sampling stage associated with the EPA site assessment process. An SI is performed to characterize a site identified on Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) through the use of Hazard Ranking System (HRS) documentation and to evaluate the site for imminent and substantial endangerment (ISE) conditions and removal potential. An SI includes the collection and analysis of target data, environmental samples, and other data required for the completion of an HRS PREScore. Data obtained during the SI are used to determine whether a CERCLIS site warrants one of the following actions according to the Superfund Amendments and Reauthorization Act (SARA):

- An additional removal action;
- An Expanded Site Inspection (ESI);
- An HRS scoring package for proposal to the National Priorities List (NPL); or
- A No Further Remedial Action Planned (NFRAP) designation.

2 Site Background

2.1 Site Location and Description

The Nethery Landfill is located at 500 Deepwood Street in Dallas, Dallas County, Texas (Ref. 11). The landfill occupies approximately 84 acres and is bordered by a residential neighborhood to the north, the Woodland Springs Park to the east, the Trinity River and McCommas Bluff Park to the south, and non-operational quarry land to the west. The nearest residents are located approximately 250 feet north of the landfill. An apartment complex is north of the intersection of Jim Miller Road and Gayglen Drive (Figures 1 and 2). The geographic coordinates of the site are 30°42' 29.66" north latitude and 96°42' 6.07" west longitude as measured from Etak, Inc. software (Ref. 14).

The inactive and abandoned landfill can be divided into three primary areas: the North Disposal Area, the South Side, and the West Side (Figure 2). The North Disposal Area contains the majority of the debris and comprises approximately 35 acres with waste reaching a depth of 20 to 30 feet. The waste has not been covered by soil or any other material. The South Side consists of low-lying areas not utilized in the day to day operations of the facility and comprises approximately 24 acres. The West Side, approximately 25 acres, consists of low-lying areas and had limited use as a disposal area (Ref. 5).

2.2 Ownership and Operational History

The site was an unlicensed and unpermitted landfill, owned by Mr. Herman Nethery and operated by Mr. Herman Gibbons (Ref. 18). Nethery Landfill received approximately two million cubic feet of primarily construction materials since August 1994, when it began operations (Ref. 18). In August 1996, the EPA issued a cease-and-desist order, which closed the landfill, because of the possible migration of surface water runoff from the landfill to the Trinity

River (Ref. 16). There are no manifests or records of wastes that the landfill received. There are documented episodes of illegal dumping of unknown materials at night (Ref. 16).

2.3 Regulatory Status/Activities

Specific "Industrial Activities" are required to have a National Pollution Discharge Elimination System (NPDES) Storm Water permit and a Storm Water Pollution Prevention Plan to ensure that storm water runoff will not impact water quality. Nethery Landfill did not have NPDES permit or any other permits authorizing landfill operations (Ref. 18).

2.4 Previous Investigations

The City of Dallas took civil action against Mr. Nethery, the site owner, in 1996. In June 1996, the Texas Natural Resource Conservation Commission (TNRCC) and the EPA-Criminal Investigation Division (CID) began to investigate the landfill operations for possible criminal intent. On September 13, 1996, TNRCC and EPA-CID conducted an inspection at the landfill. The inspectors observed a smoldering area within the landfill and the START contractor responded to the fire, conducted air monitoring, and documented site conditions. Air monitoring equipment was used to test for volatile organic compounds (VOCs), cyanide, hydrogen sulfide, phosgene, and radiation. Air monitoring results did not indicate the presence of these contaminants at concentrations greater than background levels (Ref. 17). The landfill burned for approximately seven months, from September 1996 through March 1997 (Ref. 17). Sampling was also conducted by TNRCC and City of Dallas. The analytical results are discussed in Section 4.1.

2.5 Source Waste Characterization

The North Disposal Area is the source of contamination. This area contains the portion of the landfill which occupies approximately 35 acres and has a waste thickness of 20 to 30 feet in some areas (Ref. 5).

Topographic maps show the landfill is located on land which was previously used as a gravel pit and was bordered by a levee on the south side (Ref. 19). There is no documentation or evidence that a liner, leachate collection system, run-off control system, or monitoring wells were installed at the source (Ref. 15). There is no containment of the waste or cover to the landfill (Appendix A). The majority of the property is fenced or contains barriers to access, but a portion of the fencing on the north side of the North Disposal Area is missing. This section is adjacent to the nearest residences approximately 250 feet to the north, and allows for easy access by foot (Appendix A).

Hazardous substances associated with the landfill include copper and polynuclear aromatic hydrocarbons (PAHs). The analytical results of the samples characterizing the landfill are discussed in Section 4.2.1.

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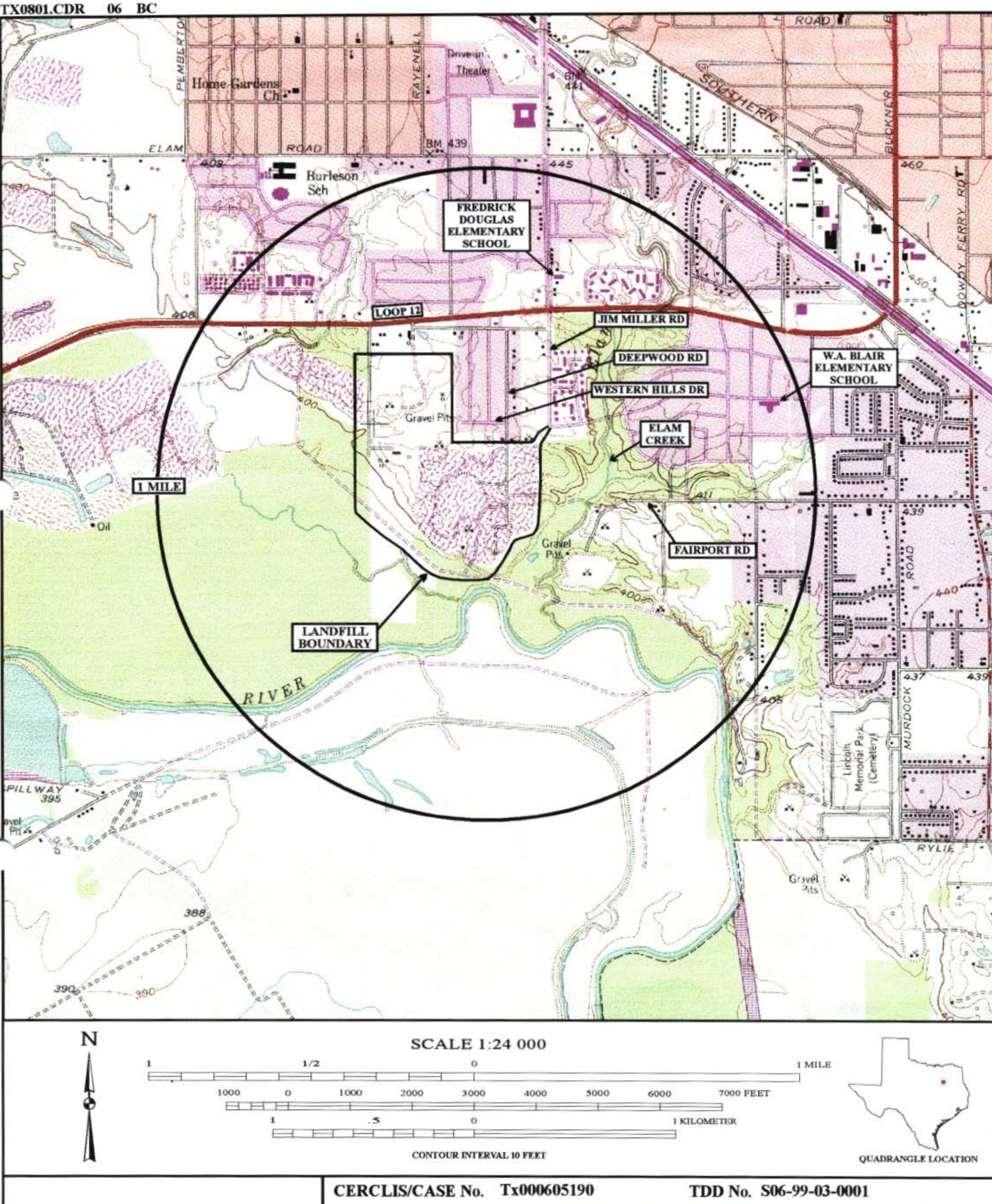

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Superfund Technical Assessment & Response Team - Region 6

CERCLIS/CASE No. Tx000605190 TDD No. S06-99-03-0001

SOURCE: U.S.G.S. 7.5 MIN. TOPOGRAPHIC QUADRANGLES HUTCHINS, TEXAS - 1958

FIGURE 1
SITE LOCATION MAP
NETHERY LANDFILL
DALLAS, TEXAS

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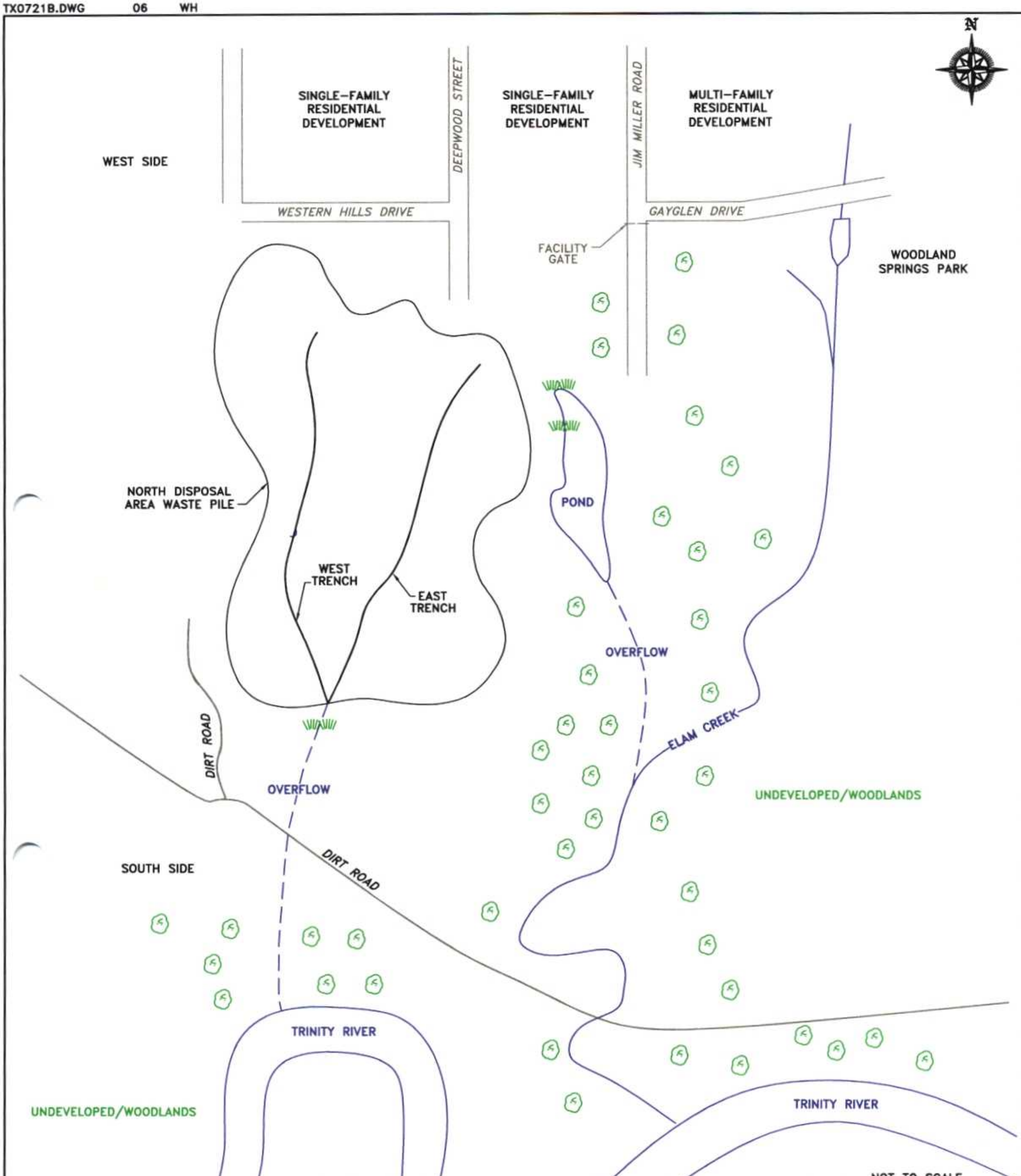

LEGEND

CATTAILS

TREES

OVERFLOW

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Superfund Technical Assessment & Response Team – Region 6

FIGURE 2 SITE SKETCH
NETHERY LANDFILL
DALLAS, DALLAS COUNTY, TEXAS

TDD# 06-99-03-0001	Date: JULY 23, 1999
PAN 080801SIXX	P.M.: M. BROWN

3 Investigation Methodology

3.1 Site-Specific Objectives

The objectives of the SI performed at the Nethery Landfill site were to:

- Obtain sufficient HRS-quality analytical data to characterize the site;
- Determine whether surface water exposure target receptors have been adversely impacted by contaminants at the site;
- Obtain additional non-sampling data for source characterization and pathway evaluation; and
- Determine whether contamination is present at the site at concentrations that pose a health risk to residents or future occupants.

3.2 Sample Methodology

To meet the objectives of this investigation, START performed judgmental sampling to characterize potential contaminants associated with the site. From August 10 to 12, 1999, 19 samples were collected by START, including surface soil, sediment, and field duplicates. All surface and sediment samples were collected with cleaned stainless-steel trowels. All samples were sent to designated Contract Laboratory Program (CLP) laboratories and were analyzed for Target Compound List (TCL) volatiles, TCL semivolatiles, TCL pesticides, polychlorinated biphenyls (PCBs), and Target Analyte List (TAL) metals using CLP protocols (Ref. 21). All samples were cooled to 4°C with bagged ice placed in the shipping coolers and were shipped for overnight delivery to the designated CLP laboratory using Federal Express. Inorganic and organic traffic reports and chain-of-custody (COC) forms are presented in Appendix B. All field activities were documented using sample tags/labels, daily logs, field notebooks, photographic documentation, and COC procedures (Appendix D). Figure 3 is a map of sample locations.

3.2.1 Source Samples

Four grab surface (0 to 6 inches) soil samples, including a duplicate and a background, were collected from the North Disposal Area landfill. One sample was collected from the north end of the landfill close to the east pond (SS-01) (Figure 3). Another sample and its duplicate were collected at the south end of the landfill west of the west trench and close to the southern overflow (SS-02 and 03). The background sample was taken across the street from the apartments located north of the site (SS-04). All of the samples were analyzed for TCL volatiles, TCL semivolatiles, TCL pesticides, PCBs, and TAL metals under EPA's CLP statement of work (Table 3-1) (Ref. 21).

3.2.2 Sediment Samples

Fifteen sediment samples, including a duplicate and background, were collected at the overflows and surface water pathways during the SI field activities. Three samples were collected from the pond east of the North Disposal Area (SD-01, 02, and 03). Two samples were collected from the overflow at the south end of the pond (SD-04 and 05). Three samples and a duplicate were collected from Elam Creek (SD-06, 07, 08, and 09). These samples were collected at approximately 200-foot intervals beginning at the first Probable Point of Entry (PPE 1). Five samples were collected from the overflow south of the North Disposal Area (SD-11, 12, 13, 14, and 15). These samples were collected at approximately 100-foot intervals beginning at the landfill and continuing to PPE 2. The background sample was taken from Elam Creek north of the site (SD-10). All of the samples were analyzed for TCL volatiles, TCL semivolatiles, TCL pesticides, PCBs, and TAL metals under EPA's CLP statement of work (Table 3-1) (Ref. 21).

3.3 Non-Sampling Data Collection Methodology

Non-sampling data collected during the course of the SI included source dimensions and containment structures; site terrain, soil and vegetation; population counts; surface water targets; and wetland frontage. This information will be discussed in the appropriate sections.

3.4 Emergency Response/Removal Sampling Actions

No actual or potential exposure to nearby humans, animals, or food chain from hazardous substances, pollutants, or contaminants was noted during the START SI field activities. No imminent and substantial endangerment (ISE) conditions such as potential to fire or explosion were observed. No additional sampling was conducted in support of removal actions or for removal considerations at the Nethery Landfill site.

Table 3-1
August 1999
Site Inspection Samples
Nethery Landfill
Dallas, Dallas County, Texas

Station No.	CLP Sample No.	Matrix	Destination	Location/Rationale
SS-01	FC-X38 MFJ-S80	Soil	CLP designated laboratory	Source soil sample collected north of the east trench in the North Disposal Area. Rationale: This sample will serve to characterize the contents of the landfill. Depth: 0 to 6 inches
SS-02	FC-X39 MFJ-S81	Soil	CLP designated laboratory	Source soil sample collected southwest of the west trench in the North Disposal Area. Rationale:This sample will serve to characterize the contents of the landfill Depth: 0 to 6 inches
SS-03	FC-X40 MFJ-S82	Soil	CLP designated laboratory	Duplicate of SS-02. Rationale: To check field and laboratory procedures. Depth: 0 to 6 inches
SS-04	FC-X56 MFJ-S98	Soil	CLP designated laboratory	Background soil sample collected north of landfill. Rationale: To determine ambient concentrations of organic and inorganic compounds. Depth: 0 to 6 inches
SD-01	FC-X41 MFJ-S83	Sediment	CLP designated laboratory	Target sediment sample collected from the north end of the pond east of the North Disposal Area. Rationale: To determine if hazardous substances from the landfill have migrated into the pond.
SD-02	FC-X42 MFJ-S84	Sediment	CLP designated laboratory	Target sediment sample collected from the middle of the pond east of the North Disposal Area. Rationale: To determine if hazardous substances from the landfill have migrated into the pond.
SD-03	FC-X43 MFJ-S85	Sediment	CLP designated laboratory	Target sediment sample collected from the south end of the pond east of the North Disposal Area. Rationale: To determine if hazardous substances from the landfill have migrated into the pond.

Table 3-1
August 1999
Site Inspection Samples
Nethery Landfill
Dallas, Dallas County, Texas

Station No.	CLP Sample No.	Matrix	Destination	Location/Rationale
SD-04	FC-X44 MFJ-S86	Sediment	CLP designated laboratory	Target sediment sample collected from the overflow at the south end of the east pond. Rationale: To determine if hazardous substances from the pond have migrated to the overflow.
SD-05	FC-X45 MFJ-S87	Sediment	CLP designated laboratory	Target sediment sample collected near PPE 1 from the overflow into Elam Creek. Rationale: To determine if hazardous substances from the overflow have migrated to Elam Creek.
SD-06	FC-X46 MFJ-S88	Sediment	CLP designated laboratory	Target sediment sample collected from Elam Creek near PPE 1. Rationale: To determine if hazardous substances have entered an HRS criteria wetland.
SD-07	FC-X47 MFJ-S89	Sediment	CLP designated laboratory	Target sediment sample collected from Elam Creek downstream of PPE 1. Rationale: To determine if hazardous substances have entered an HRS criteria wetland.
SD-08	FC-X48 MFJ-S90	Sediment	CLP designated laboratory	Target sediment sample collected from Elam Creek approximately 1,000 feet down stream of PPE 1. Rationale: To determine if hazardous substances have entered an HRS criteria wetland.
SD-09	FC-X49 MFJ-S91	Sediment	CLP designated laboratory	Duplicate of sample SD-08. Rationale: To check field and laboratory procedures.
SD-10	FC-X50 MFJ-S92	Sediment	CLP designated laboratory	Background sediment sample collected upstream of the PPE in Elam Creek. Rationale: To determine ambient concentrations of organic compounds and inorganic analytes.
SD-11	FC-X51 MFJ-S93	Sediment	CLP designated laboratory	Target sediment sample collected from the overflow where the trenches meet south of the North Disposal Area. Rationale: To determine if hazardous substances from the landfill have migrated to the overflow.

Table 3-1
August 1999
Site Inspection Samples
Nethery Landfill
Dallas, Dallas County, Texas

Station No.	CLP Sample No.	Matrix	Destination	Location/Rationale
SD-12	FC-X52 MFJ-S94	Soil	CLP designated laboratory	Target sediment sample collected from the overflow south of the North Disposal Area. Rationale: To determine if hazardous substances have entered the drainage pathway to the Trinity River.
SD-13	FC-X53 MFJ-S95	Soil	CLP designated laboratory	Target sediment sample collected from the overflow south of the North Disposal Area. Rationale: To determine if hazardous substances have entered the drainage pathway to the Trinity River.
SD-14	FC-X54 MFJ-S96	Soil	CLP designated laboratory	Target sediment sample collected from the overflow south of the North Disposal Area and dirt road. Rationale: To determine if hazardous substances have entered the drainage pathway to the Trinity River.
SD-15	FC-X55 MFJ-S97	Soil	CLP designated laboratory	Target sediment sample collected in a dry pond near PPE 2 to the Trinity River from the overflow south of the North Disposal Area. Rationale: To determine if hazardous substances have entered the drainage pathway to the Trinity River.

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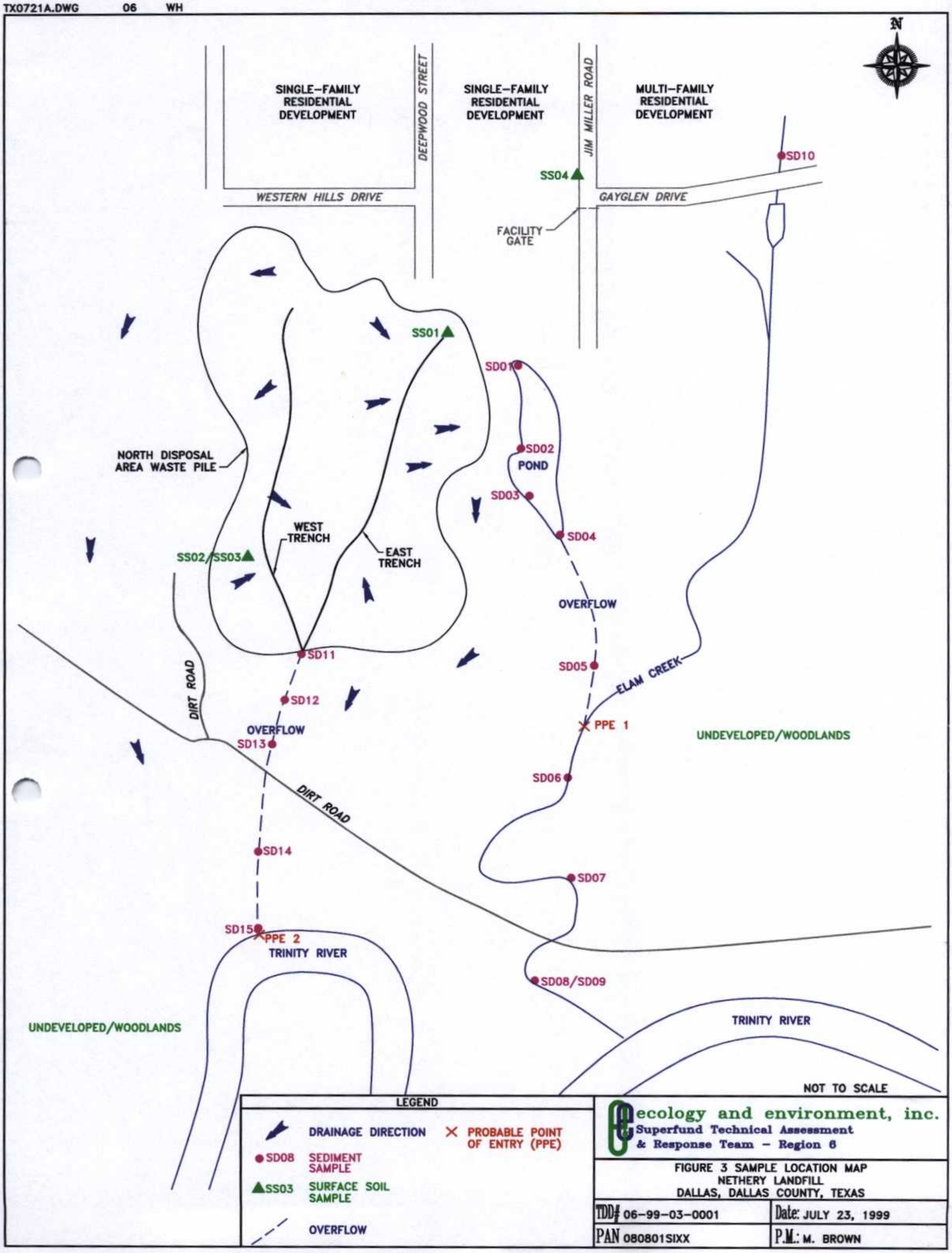

FIGURE 3 SAMPLE LOCATION MAP
NETHERY LANDFILL
DALLAS, DALLAS COUNTY, TEXAS

4 Investigation Results

4.1 Previous Analytical Results

Areas of the site have been sampled by TNRCC, START, and the City of Dallas-Dallas Water Utilities.

Initial sampling at the landfill was conducted by the TNRCC in late August and early September of 1996. Water and soil samples, from unknown locations, were analyzed for metals, base neutral acids (BNAs), total petroleum hydrocarbons (TPH), total solids, and volatile organics analyses (VOA). Low levels of metals and VOAs were detected in the soil samples analyzed, and all of the samples contained petroleum hydrocarbons (Ref. 22). The BNA results were not available to START.

START performed air monitoring in March of 1997 during the fire at the site which had continued since September 1996. Results showed that all contaminant levels were near or below background levels (Ref. 17).

Also in March 1997, during the fire, the City of Dallas-Dallas Water Utilities analyzed three water samples. The samples were taken upstream of the discharge point from the landfill, at the discharge point from the landfill (effluent), and downstream of the discharge point from the landfill. The location of the discharge point is unknown. Results indicated only the effluent sample contained slightly elevated levels of benzene (7.1 parts per billion [ppb]). The detection limit for benzene is 5.0 ppb (Ref. 23). No other sampling has taken place since March of 1997.

4.2 Site Inspection Analytical Data Results

This section discusses the results of the sampling conducted during the SI. Source soil and sediment samples were collected and analyzed in accordance with methods described in Section 3.

The analyte or compound concentrations, if qualified, were corrected based on their bias (Ref. 24). They were then compared to results obtained from background and sample quantitation limits (SQLs) from each medium after the SQLs were adjusted to reflect any changes which took place in the laboratory's extraction or analytical techniques (Ref. 20, Ref. 25). This was done to determine whether observed contamination or an observed release could be documented. To meet observed release or observed contamination criteria, if the analyte or compound is detected in the background sample, the concentration in the sample must be greater than the SQL and at least three times greater than the concentration detected in the background sample (Ref. 3). If not detected in the background sample, observed release or observed contamination criteria are met if the sample concentration is greater than the sample and background SQLs (Ref. 3). Those analytes or compounds that meet the observed release or observed contamination criteria are highlighted in Tables 4-1 through 4-5.

4.2.1 Source Samples

Source samples were collected from areas close to the leachate or overflows. The results for TAL metals did not indicate the presence of any heavy metals. Copper was detected in one of the samples and its presence may be attributed to the construction debris. This analyte was also present in the background sample (Table 4-1).

The only organic compounds detected in the source samples were from the TCL semivolatiles analysis (Table 4-2). PAHs were detected above SQLs and background levels in two of the source samples. Phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, bis(2-Ethylhexyl)phthalate, benzo(k)fluoranthene, benzo(a)pyrene and indeno(1,2,3-cd)pyrene met observed contamination criteria. These compounds are characteristic of burned waste. The landfill burned for approximately seven months, from September 1996 through March 1997 (Ref. 17). The background sample (SS-04) was non-detect at the SQL or below SQL for all organic compounds (Table 4-2).

4.2.2 Sediment Samples

Sediment samples were collected from overflow segments to the surface water and from Elam Creek. The surface water pathway is surrounded by designated wetlands (Ref. 3, Ref. 9). Several of the samples contained low-level metals contamination that met observed release criteria (Table 4-3).

In the TCL semivolatiles analysis, PAHs (phenanthrene, anthracene, carbozole, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene and benzo(g,h,i)perylene) met observed release criteria in four of the sediment samples (Table 4-4). As stated above, the presence of these compounds can be attributed to the fire. In the TCL pesticides analysis, one sediment sample contained Dieldrin at a concentration slightly greater than the SQL and three times above the background level (Table 4-5). This compound is not attributable to the source and was most likely a result of local pesticide application.

Table 4-2 Nethery Landfill Source Soil Samples Semivolatile Analysis August 1999								
SAMPLE	SS-04		SS-01		SS-02		SS-03	
CLP NO.	FC-X56		FC-X38		FC-X39		FC-X40	
	Background Sample							
	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL
Phenanthrene	120 QJK	302	270 QJK	647	410 JK (41)	312	480	302
Fluoranthene	280 QJK	302	580 QJK	647	1200 JK (120)	312	1500	302
Pyrene	250 QJK	302	380 QJK	647	1200 JK (101)	312	1100	302
Benzo(a)anthracene	160 QJK	302	290 QJK	647	640 JK (64)	312	760	302
Chrysene	210 QJK	302	330 QJK	647	710 JK (71)	312	840	302
bis(2-Ethylhexyl)phthalate	330 U	302	800	647	330 U	312	330 U	302
Benzo(k)fluoranthene	140 QJK	302	280 QJK	647	670 JK (67)	312	520	302
Benzo(a)pyrene	180 QJK	302	280 QJK	647	700 JK (70)	312	860	302
Indeno(1,2,3-cd)pyrene	170 QJK	302	230 QJK	647	500 JK (50)	312	580	302

Key:
Conc. = Concentration (given in μg/kg)
K = unknown bias
U = analyzed for but not detected
SQL = Sample Quantitation Limit
J = Sample concentration is estimated
Q = Sample concentration is below the sample quantitation limit

() = Adjusted concentration for data utilizing *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 28)
* = Three times background concentration
= Concentration meets observed contamination criteria

Table 4-3
Nethery Landfil
Sediment Samples
Metals Analysis
August 1999

SAMPLE	SD-10		SD-01		SD-02		SD-03		SD-04		SD-05		SD-06		SD-07	
CLP NO.	MFJ-S92		MFJ-S83		MFJ-S84		MFJ-S85		MFJ-S86		MFJ-S87		MFJ-S88		MFJ-S89	
	Background Sample															
	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL
Barium	33.2 Q	48	80.2	55	74.0	56.6	139	54.8	43.1 Q	63.8	11.4 Q	48	27.7 Q	52.2	136	56.8
Beryllium	0.07 U	1.2	0.08 U	1.38	0.21Q	1.42	0.08 U	1.37	0.10 U	1.60	0.07 U	1.2	0.08 U	1.3	1.5	1.42
Copper	3.3 UB	6	9.9	6.88	10.5	7.08	15.4	6.85	7.4 QJK	7.98	9.6	6	6.5 Q	6.52	17.8	7.1
Lead	54.6 163.8*	0.72	31.0	0.82	36.8	0.85	280	0.82	16.6	0.96	12.5	0.72	41.3 JK	0.78	57.0	0.85
Mercury	0.06 U	0.12	0.07 U	0.14	0.07 U	0.14	0.18	0.14	0.08 U	0.16	0.06 U	0.12	0.07 U	0.13	0.07 U	0.14
Nickel	8.3 QJK	9.6	13.3 Q	11	18.3 JK	11.3	18.3 JK (14.2)	1.10	12.5 QJK	12.8	6.1 U	9.6	8.0 Q	10.4	25.0 JK (19.4)	11.4
Vanadium	18.7 56.1*	12	32.4	13.8	31.1	14.2	25.8	13.7	24.1	16	14.1	12	21.7	13	59.3	14.2

Key:
Conc. = Concentration (given in mg/kg)
K = unknown bias
U = analyzed for but not detected
SQL = Sample Quantitation Limit
J = Sample concentration is estimated
Q = Sample concentration is below the sample quantitation limit

B = Detection level raised due to blank contamination
() = Adjusted concentration for data utilizing *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 28)
* = Three times background concentration
░ = Concentration meets observed contamination criteria

Table 4-3 Continued
Nethery Landfill
Sediment Samples
Metals Analysis
August 1999

SAMPLE	SD-10		SD-08		SD-09		SD-11		SD-12		SD-13		SD-14		SD-15	
CLP NO.	MFJ-S92		MFJ0S90		MFJ-S91		MFJ-S93		MFJ-S94		MFJ-S95		MFJ-S96		MFJ-S97	
	Background Sample															
	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL
Barium	33.2 Q	48	71.8	55.2	70.8	51	54.4	51.2	42.0 Q	56.2	34.4 Q	48.8	47.8	44.6	61.9	44.2
Beryllium	0.07 U	1.2	0.62 Q	1.38	0.67 U	1.28	0.11 Q	1.28	0.13 Q	1.4	0.09 Q	1.22	0.28 Q	1.12	0.69 Q	1.10
Copper	3.3 UB	6	9.9	6.9	12.1	6.38	4.5 UB	6.4	4.6 UB	7.0	5.8 UB	6.1	9.7	5.58	14.8	5.52
Lead	54.6 163.8*	0.72	18.5	0.83	42.0	0.76	3.9	0.77	10.7	0.84	8.1	0.73	55.0	0.67	18.6	0.66
Mercury	0.06 U	0.12	0.07 U	0.14	0.06 U	0.13	0.06 U	0.13	0.07 U	0.14	0.06 U	0.12	0.06 U	0.11	0.06 U	0.11
Nickel	8.3 QJK	9.6	7.0 U	11	19.1	10.2	6.5 UJK	10.2	7.4 QJK	11.2	10.8 JK (9.0)	9.76	10.8	8.92	11.6 JK (8.99)	8.84
Vanadium	18.7 56.1*	12	23.1	13.8	29.8	12.8	4.5 UB	12.8	12.0 Q	14	15.5	12.2	17.1	11.2	32.4	11.0

Key:
Conc. = Concentration (given in mg/kg)
K = unknown bias
U = analyzed for but not detected
SQL = Sample Quantitation Limit
J = Sample concentration is estimated
Q = Sample concentration is below the sample quantitation limit

B = Detection level raised due to blank contamination
() = Adjusted concentration for data utilizing *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 28)
* = Three times background concentration
▒ = Concentration meets observed contamination criteria

Table 4-4
Nethery Landfill
Sediment Samples
Semivolatile Analysis
August 1999

SAMPLE	SD-10		SD-01		SD-02		SD-03		SD-04		SD-05		SD-06	
CLP NO.	FC-X50		FC-X41		FC-X42		FC-X43		FC-X44		FC-X45		FC-X46	
	Background Sample													
	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL
Phenanthrene	2200 JK (200) 660*	373	3400	426	5400	802	870	475	490 U	492	21QJK	356	59 QJK	350
Anthracene	520 JK (52) 156*	373	1000	426	1400	802	160 QJK	475	490 U	492	360 U	356	350 U	350
Carbazole	290 QJK	373	520	426	820	802	130 QJK	475	490 U	492	360 U	356	19 QJK	350
Fluoranthene	3000 JK (300)900*	373	6200 D	848	10000 D	1600	2000	475	490 U	492	27 QJK	356	280 QJK	350
Pyrene	3000 JK (253) 759*	373	4100 D	848	6400 D	1600	1400	475	490 U	492	360 U	356	240 QJK	350
Benzo(a)anthracene	1500 JK (150) 450*	373	2800	426	4900	802	810	475	490 U	492	22 QJK	356	130 QJK	350
Chrysene	1600 JK (160) 480*	373	2800	426	5000	802	970	475	490 U	492	21 QJK	356	150 QJK	350

Key:
Conc. = Concentration (given in $\mu g/kg$)
K = unknown bias
U = analyzed for but not detected
SQL = Sample Quantitation Limit
J = Sample concentration is estimated
Q = Sample concentration is below the sample quantitation limit
D = Data obtained as a result of dilution

() = Adjusted concentration for data utilizing *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 28)
* = Three times background concentration
░ = Concentration meets observed contamination criteria

Table 4-4 Continued
Nethery Landfill
Sediment Samples
SemivolatilE Analysis
August 1999

SAMPLE	SD-10		SD-01		SD-02		SD-03		SD-04		SD-05		SD-06	
CLP NO.	FC-X50		FC-X41		FC-X42		FC-X43		FC-X44		FC-X45		FC-X46	
	Background Sample													
	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL
Benzo(b)fluoranthene	1400 JK (140) 420*	373	2300	426	4800	802	920	475	490 U	492	360 U	356	130 QJK	350
Benzo(k)fluoranthene	1000 JK (100) 300*	373	2100	426	2700	802	620	475	490 U	492	360 U	356	180 QJK	350
Benzo(a)pyrene	1300 JK (130) 309*	373	2600	426	4400	802	850	475	490 U	492	22 QJK	356	130 QJK	350
Indeno(1,2,3-cd)pyrene	820 JK (82) 246*	373	1500	426	2600	802	530	475	490 U	492	360 U	356	86 QJK	350
Dibenzo(a,h)anthracene	400 JK (40) 120*	373	7890	426	1400	802	210 QJK	475	490 U	492	360 U	356	46 QJK	350
Benzo(g,h,i)perylene	820 JK (82) 246*	373	1500	426	2600	802	580	475	490 U	492	22 QJK	356	97 QJK	350

Key:
Conc. = Concentration (given in $\mu g/kg$)
K = unknown bias
U = analyzed for but not detected
SQL = Sample Quantitation Limit
J = Sample concentration is estimated
Q = Sample concentration is below the sample quantitation limit

() = Adjusted concentration for data utilizing *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 28)
* = Three times background concentration
▒ = Concentration meets observed contamination criteria

Table 4-4 Continued
Nethery Landfill
Sediment Samples
Semivolatile Analysis
August 1999

SAMPLE	SD-10		SD-07		SD-08		SD-09		SD-11		SD-12		SD-13	
CLP NO.	FC-X50		FC-X47		FC-X48		FC-X49		FC-X51		FC-X52		FC-X53	
	Background Sample													
	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL
Phenanthrene	2200 JK (220) 660*	373	27 QJK	455	150 QJK	396	270 QJK	380	440 QJK	1086	390 U	389	370 U	373
Anthracene	520 JK (52) 156*	373	450 U	455	22 QJK	396	62 QJK	380	130 QJK	1086	390 U	389	370 U	373
Carbozole	290 QJK	373	450 U	455	34 QJK	396	57 QJK	380	1100 U	1086	390 U	389	370 U	373
Fluoranthene	3000 JK (300)900*	373	66 QJK	455	460	396	850	380	450 QJK	1086	390 U	389	370 U	373
Pyrene	3000 JK (253) 759*	373	54 QJK	455	420	396	770	380	580 QJK	1086	28 QJK	389	370 U	373
Benzo(a)anthracene	1500 JK (150) 450*	373	33 QJK	455	160 QJK	396	390	380	260 QJK	1086	390 U	389	370 U	373
Chrysene	1600 JK (160) 480*	373	53 QJK	455	230 QJK	396	380 U	380	250 QJK	1086	390 U	389	370 U	373

Key:
Conc. = Concentration (given in $\mu g/kg$)
K = unknown bias
U = analyzed for but not detected
SQL = Sample Quantitation Limit
J = Sample concentration is estimated
Q = Sample concentration is below the sample quantitation limit

() = Adjusted concentration for data utilizing *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 28)
* = Three times background concentration
= Concentration meets observed contamination criteria

Table 4-4 Continued
Nethery Landfill
Sediment Samples
Semivolatile Analysis
August 1999

SAMPLE	SD-10		SD-07		SD-08		SD-09		SD-11		SD-12		SD-13	
CLP NO.	FC-X50		FC-X47		FC-X48		FC-X49		FC-X51		FC-X52		FC-X53	
	Background Sample													
	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL
Benzo(b)fluoranthene	1400 JK (140) 420*	373	65 QJK	455	240 QJK	396	320 QJK	380	180 QJK	1086	390 U	389	370 U	373
Benzo(k)fluoranthene	1000 JK (100) 300*	373	25 QJK	455	240 QJK	396	390	380	210 QJK	1086	390 U	389	370 U	373
Benzo(a)pyrene	1300 JK (130) 309*	373	42 QJK	455	200 QJK	396	320 QJK	380	220 QJK	1086	390 U	389	370 U	373
Indeno(1,2,3-cd)pyrene	820 JK (82) 246*	373	47 QJK	455	150 QJK	396	240 QJK	380	130 QJK	1086	390 U	389	370 U	373
Dibenzo(a,h)anthracene	400 JK (40) 120*	373	450 U	455	63 QJK	396	110 QJK	380	73 QJK	1086	390 U	389	370 U	373
Benzo(g,h,i)perylene	820 JK (82) 246*	373	52 QJK	455	170 QJK	396	250 QJK	380	150 QJK	1086	390 U	389	370 U	373

Key:
Conc. = Concentration (given in $\mu g/kg$)
K = unknown bias
U = analyzed for but not detected
SQL = Sample Quantitation Limit
J = Sample concentration is estimated
Q = Sample concentration is below the sample quantitation limit

() = Adjusted concentration for data utilizing *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 28)
* = Three times background concentration
▒ = Concentration meets observed contamination criteria

Table 4-4 Continued
Nethery Landfill
Sediment Samples
Semivolatile Analysis
August 1999

SAMPLE	SD-10		SD-14		SD-15	
CLP NO.	FC-X50		FC-X54		FC-X55	
	Background Sample					
	Conc.	SQL	Conc.	SQL	Conc.	SQL
Phenanthrene	2200 JK (220) 660*	373	99 QJK	325	42 QJK	370
Anthracene	520 JK (52) 156*	373	18 QJK	325	370 U	370
Carbozole	290 QJK	373	330 U	325	370 U	370
Fluoranthene	3000 JK (300) 900*	373	150 QJK	325	65 QJK	370
Pyrene	3000 JK (253) 759*	373	230 QJK	325	98 QJK	370
Benzo(a)anthracene	1500 JK (150) 450*	373	100 QJK	325	48 QJK	370
Chrysene	1600 JK (160) 480*	373	120 QJK	325	66 QJK	370

Key:
Conc. = Concentration (given in μg/kg)
K = unknown bias
U = analyzed for but not detected
SQL = Sample Quantitation Limit
J = Sample concentration is estimated
Q = Sample concentration is below the sample quantitation limit

() = Adjusted concentration for data utilizing *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 28)
* = Three times background concentration
▒ = Concentration meets observed contamination criteria

4-11

Table 4-4 Continued
Nethery Landfill
Sediment Samples
Semivolatile Analysis
August 1999

SAMPLE	SD-10		SD-14		SD-15	
CLP NO.	FC-X50		FC-X54		FC-X55	
	Background Sample					
	Conc.	SQL	Conc.	SQL	Conc.	SQL
Benzo(b)fluoranthene	1400 JK (140) 420*	373	120 QJK	325	59 QJK	370
Benzo(k)fluoranthene	1000 JK (100) 300*	373	110 QJK	325	73 QJK	370
Benzo(a)pyrene	1300 JK (130) 309*	373	110 QJK	325	53 QJK	370
Indeno(1,2,3-cd)pyrene	820 JK (82) 246*	373	64 QJK	325	43 QJK	370
Dibenzo(a,h)anthracene	400 JK (40) 120*	373	330 U	325	19 QJK	370
Benzo(g,h,i)perylene	820 JK (82) 246*	373	72 QJK	325	50 QJK	370

Key:
Conc. = Concentration (given in μg/kg)
K = unknown bias
U = analyzed for but not detected
SQL = Sample Quantitation Limit
J = Sample concentration is estimated
Q = Sample concentration is below the sample quantitation limit

() = Adjusted concentration for data utilizing *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 28)
* = Three times background concentration
▒ = Concentration meets observed contamination criteria

Table 4-5
Nethery Landfill
Sediment Samples
Pesticide Analysis
August 1999

SAMPLE	SD-10		SD-01		SD-02		SD-03		SD-04		SD-05		SD-06		SD-07	
CLP NO.	FC-X50		FC-X41		FC-X42		FC-X43		FC-X44		FC-X45		FC-X46		FC-X47	
	Background Sample															
	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL
Dieldrin	380 U	376	150 QJK	370	940	370	200 QJK	460	510 U	508	360 U	364	350 U	355	460 U	456

Table 4-5 Continued
Nethery Landfill
Sediment Samples
Pesticide Analysis
August 1999

SAMPLE	SD-10		SD-08		SD-09		SD-11		SD-12		SD-13		SD-14		SD-15	
CLP NO.	FC-X50		FC-X41		FC-X42		FC-X43		FC-X44		FC-X45		FC-X46		FC-X47	
	Background Sample															
	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL	Conc.	SQL
Dieldrin	380 U	376	390 U	394	380 U	376	560 U	565	400 U	399	380 U	380	340 U	342	360 U	361

Key:
Conc. = Concentration (given in μg/kg)
K = unknown bias
U = analyzed for but not detected
SQL = Sample Quantitation Limit
J = Sample concentration is estimated
Q = Sample concentration is below the sample quantitation limit

() = Adjusted concentration for data utilizing *Using Qualified Data to Document an Observed Release and Observed Contamination* (Ref. 28)
* = Three times background concentration
░ = Concentration meets observed contamination criteria

5 Pathway Assessment

This section characterizes the environmental pathways and associated targets of potential contaminant migration from the site.

5.1 Ground Water Pathway

5.1.1 Ground Water Characteristics

The site is situated on an outcrop of alluvium which consists of sand, silt, clay, and gravel. The alluvium overlies the Austin Group, which consists of the following geological units: Gober Chalk, Brownstown Marl, Blossom Sand, and Bonham Formation. These units have an approximate maximum thickness of 700 feet and consist of chalk, limestone, and marl. The Austin Group yields small to moderate quantities of water to wells in parts of Texas north of the site with very limited use as an aquifer (Ref. 26, Ref. 30). Below the Austin Group is the Trinity Aquifer, the major aquifer in the area, which is located in the Antlers Formation (which is subdivided into the Paluxy Formation, Glen Rose Formation and Twin Mountains Formation). The Antlers Formation consists of rocks of Cretaceous age and consists of fine sand, sandy shale, and shale on top, limestone, marl, shale, and anhydrite in the middle, and fine to course sand, shale, clay, and basal gravel and conglomerate at the bottom. It has an approximate maximum thickness of 1,000 feet. The Trinity Aquifer yields small quantities of water in the areas surrounding the site. Underlying the Trinity Aquifer is a confining unit consisting of clay and shale (Ref. 26). There is no evidence of karst terrain. Annual net precipitation for the area is 37 inches (Ref. 4).

5.1.2 Ground Water Receptors

There is one inactive public supply water well located between 2 and 3 miles from the site and two wells located between 3 and 4 miles from the site. None of these wells are used for drinking or irrigation (Ref. 27). Currently, all potable water for the City of Dallas is supplied by surface water (Ref. 6). All other wells located within the target distance limit (TDL) are either unused or abandoned. No wellhead protection areas have been identified.

5.2 Surface Water Pathway

5.2.1 Surface Water Characteristics

The site is located on arents, loamy, hilly soil which consists of an overburden that has been left in mounds and ridges in the gravel pits. Permeability is moderate, run-off is rapid, and the hazard for erosion is severe (Ref. 8). Overland flow from the landfill flows in two directions (Ref. 15). Drainage from the east side of the landfill flows toward the east into the pond. The pond then flows overland approximately 1,000 feet to Elam Creek; this point is PPE 1 (Ref 3). Based on observations made during the SI field activities, Elam Creek has a flow rate of less than 10 cubic feet per second (cfs) (Ref. 1 ; Appendix A). Drainage from the south of the landfill flows south, overland approximately 500 feet to the Trinity River, PPE 2. The Trinity River has an average flow of 2,017 cfs (Ref. 28). The upgradient drainage is the area of the source, which is 35 acres. The landfill, although located within a pit, is situated several feet above the surface water which surrounds it (Appendix A).

The two-year, 24-hour rainfall is 4 inches (Ref. 7). The site is located between a 100-year and 500-year flood plain (Ref. 12). There is no flood containment on site.

5.2.2 Surface Water Receptors

There are no surface water intakes (drinking) located within the 15-mile TDL, as all public water supply is obtained from reservoirs located north of the site (Ref. 6).

Elam Creek has no documented surface water resource usage. No evidence of surface water use within the TDL has been documented from the Trinity River; however, evidence of fishing was observed (Appendix A). The annual poundage of aquatic human food chain organisms caught and consumed cannot be documented (Ref. 32). The varieties of fish caught from the Trinity River include bass, bluegill, carp, catfish, sunfish, crappie, drum, warmouth, and gar (Ref. 29). It will be assumed that at least 1 pound of human food chain, aquatic organisms are caught and consumed annually from the Trinity River (Ref. 1, Ref. 3).

Several federal listed threatened and endangered species, including the Black-capped Vireo, the Interior Least Tern, the Migrant Loggerhead Shrike, and the Texas Garter Snake may inhabit areas along the 15-mile TDL; however, they have not been officially documented as being present (Ref. 13).

According to the National Wetlands Inventory (NWI) and 40 CFR 230.3, eligible wetlands border Elam Creek and parts of the Trinity River south of the landfill (Ref. 3, Ref. 9). Approximately 17 miles of designated wetland frontage exists along Elam Creek and the Trinity River within the 15-mile TDL (Ref. 9).

Sediment samples were taken along Elam Creek at least 0.1 mile down from PPE 1 to establish environmental threat (Ref. 31). The first 800 feet from PPE 1 contained no observed release of hazardous constituents (Ref. 3). The analytical data from the last 225 feet of sediment sampling met observed release criteria (Ref. 3)(Tables 4-3 through 4-5). This distance is less than the 528 feet or 0.10 mile required to establish environmental threat (Ref. 31).

5.3 Ground Water to Surface Water Pathway

The depth to ground water in the vicinity of the site is approximately 500 feet below ground surface (Ref. 30). The surface water elevation of Elam Creek and the Trinity River is unknown. Additional information would need to be obtained to determine if the criteria for the pathway have been met (Ref. 1).

5.4 Soil Exposure Pathway

5.4.1 Resident Threat Receptors

The site has been inactive since mid-1996. No workers are present at the site. During the SI field activities, START did not observe any schools or day care centers located on site or within 200 feet of the source (Ref. 15). The nearest resident is approximately 250 feet north of the site. Habitats for several federal listed threatened and endangered species, including the Black-capped Vireo, the Interior Least Tern, the Migrant Loggerhead Shrike, and the Texas Garter Snake exist within Dallas County; however, these species have not been officially documented as being present within the one mile TDL (Ref. 13). No commercial livestock production, grazing, silviculture, or agriculture occurs on the site (Ref. 15).

5.4.2 Nearby Threat Receptors

The entrance to the landfill is fenced and locked and dirt roads to the property are blocked (Ref. 15). A fence surrounds most of the northern perimeter, but is missing from a few locations just south of residences (Appendix A). During SI field activities, it was observed that hunting occurs on the facility property. Numerous shotgun shells were located to the south of the site and there is evidence that local residents may trespass on the property with egress from the southeast of the site (Ref. 15) (Appendix A). Attractiveness/accessibility will be evaluated as "moderately accessible with some public recreation use" (Ref. 3, Ref. 15).

The distance to the nearest individual is 100 feet. The nearby populations are as follows (Ref. 10):

Distance Ring	Population Estimate
0 to ¼ mile	270
¼ to ½ mile	2,253
½ to 1 mile	6,966
Total	9,489

Within the 1-mile radius, there are two elementary schools with a total enrollment of 1,217 students and a park (Ref. 19, Ref. 33) (Figure 1).

Based on the data obtained during the SI, the soil exposure pathway is not of concern (Tables 4-1 and 4-2).

5.5 Air Pathway

5.5.1 Air Pathway Characteristics

The landfill is moderately vegetated, which limits the potential for gaseous or particulate release to air. There were no odors detected during SI field activities, and previous air monitoring results did not indicate the presence of these contaminants at concentrations greater than background levels (Ref. 17).

5.5.2 Air Receptors

The nearest individual is located within 250 feet of the site (Ref. 15). In Dallas County, there are approximately 26 schools within a 4-mile TDL (Ref. 19). Many other schools in Dallas

County are within the 4-mile TDL but their enrollments were not included in the population estimates, since their total enrollments are not known.

Distance Ring	Population Estimate
0 to ¼ mile	270
¼ to ½ mile	2,253
½ to 1 mile	6,966
1 to 2 miles	13,868
2-3 miles	18,939
3 to 4 miles	41,635
Total	83,931

Woodlands Springs Park, a designated recreation area, is located within ¼ to ½ mile of the site (Ref. 15). There is approximately 1,775 acres of HRS criteria wetlands within the 4-mile TDL (Ref. 3, Ref. 9).

6 Project Management

Section 6 presents on-site E & E personnel associated with the SI and the community relations staff to be contacted for information pertaining to this site. Key personnel, level of effort, and community relations are addressed in this section.

6.1 Key Personnel

Michelle Brown of E & E was the project manger for completion of the SI. Her responsibilities included the implementation of the work plan and completion of the report. E & E field operations staff also included Mike Mitchell, Maggie Lin-Carson, and Jody Shires. Mitchell was responsible for implementing the Health and Safety Plan. Mitchell, Lin-Carson, and Shires were responsible for sampling. All team members assisted in the decontamination procedures and packaging of the samples. William Rhotenberry, EPA Site Assessment Manager (SAM), was on site during most of the SI field sampling activities.

6.2 Community Relations

Persons requesting site information are instructed to submit a Freedom of Information Act Request to:

Freedom of Information Office
EPA Region 6
1445 Ross Avenue
Dallas, Texas 75202-2737

7 Summary

The Nethery Landfill is located at 500 Deepwood Drive in Dallas , Dallas County, Texas. The site is an inactive landfill which was illegally operated from mid-1994 until mid-1996. The site is surrounded by residential areas and is moderately accessible to the public. It is located 500 feet north of the Trinity River. People have been documented on the south side of the property. There are no buildings or equipment on site. The nearest school is within the ¼- to ½-mile target radius of the site.

The landfill was an unpermitted and unlicensed facility and its owner and operator underwent criminal investigations in 1996. The site contains mainly construction debris, which reaches a depth of 20 to 30 feet in some areas. The landfill utilized existing gravel pits and is uncovered and unlined.

SI field activities were conducted at the site during the week of August 9, 1999. During this time, the START contractor collected samples for chemical analysis and documented evidence of egress onto the site. Source soil samples and sediment samples from the overflows and surface water were collected and sent for TCL volatiles, TCL semivolatiles, TCL pesticides, PCBs, and TAL metals analyses.

Analysis of the samples collected indicate the presence of metals and PAHs characteristic of the waste and fire which occurred at the site from 1996 through 1997.

The pathway of concern for HRS evaluation is the Surface Water Migration Pathway. An area of observed release of Hazardous Substances were documented into the wetlands; however, the wetland frontage subject to contamination is less than 0.1 mile. Samples collected from the overflow to the Trinity River contained metal contamination at the beginning of the overflow and for the last two hundred feet before the PPE 2 to the Trinity River. The middle 300 feet of sampling contained no observed contamination. No other contaminants were found in the samples collected at this overflow.

Based on the available data, the Nethery Landfill site is not an eligible candidate for placement onto the National Priorities List (NPL).

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A Photodocumentation

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 101 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 0950 DIRECTION: WEST
FRONT ENTRY SIGN

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 102 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 0955 DIRECTION: SOUTHWEST
RANORAMIC VIEW OF LANDFILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 103 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 0955 DIRECTION: WEST
PANORAMIC VIEW OF LANDFILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 104 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 0955 DIRECTION: WEST
PANORAMIC VIEW OF LANDFILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 105 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 0955 DIRECTION: NORTHEAST
PANORAMIC VIEW OF LANDFILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 106 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 1000 DIRECTION: SOUTHWEST
GULLY AT PERIMETER OF LANDFILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 107 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 1002 DIRECTION: SOUTH
SHOT OF LANDFILL FROM GULLY

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 108 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 1015 DIRECTION: SOUTH
STAGNANT WATER IN GULLY SURROUNDING LANDFILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 109 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 1020 DIRECTION: SOUTH
WATER WITH FLOATING DEBRIS

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 110 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 1030 DIRECTION: NORTHWEST
VIEW OF FILL AND GULLY

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 111 PHOTOGRAPHER/WITNESS: LLYOD /BROWN
DATE: 07/01/99 TIME: 1030 DIRECTION: NORTH
VIEW OF FILL AND GULLY

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 112 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 1045 DIRECTION: SOUTH
WETLANDS ON EAST SIDE OF LANDFILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 113 PHOTOGRAPHER/WITNESS: LLYOD / BROWN
DATE: 07/01/99 TIME: 1100 DIRECTION: EAST
BROKEN FENCE WITH OLD GRAVEL PIT IN BACKGROUND
CONTAINING CONCRETE AND ROCKS

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 114 PHOTOGRAPHER/WITNESS: BROWN / LLYOD
DATE: 07/08/99 TIME: 1040 DIRECTION: SOUTH
SEWAGE VENT

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 115 PHOTOGRAPHER/WITNESS: BROWN / RHOTENBERRY
DATE: 07/15/99 TIME: 1350 DIRECTION: NORTH
FROM DIRT ROAD TOWARD FILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 116 PHOTOGRAPHER/WITNESS: BROWN / RHOTENBERRY
DATE: 07/15/99 TIME: 1410 DIRECTION: SOUTH
OVERFLOW FROM FILL TOWARD TRINITY

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 117 PHOTOGRAPHER/WITNESS: RHOTENBERRY / BROWN
DATE: 07/15/99 TIME: 1412 DIRECTION: NORTH
FROM HILL BY OVERFLOW TOWARD FILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 118 PHOTOGRAPHER/WITNESS: BROWN / RHOTENBERRY
DATE: 07/15/99 TIME: 1450 DIRECTION: SOUTH
WETLAND POND TO THE EAST OF FILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 119 PHOTOGRAPHER/WITNESS: BROWN / RHOTENBERRY
DATE: 07/15/99 TIME: 1500 DIRECTION: SOUTHEAST
FROM FILL TOWARDS POND

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 120 PHOTOGRAPHER/WITNESS: BROWN / RHOTENBERRY
DATE: 07/15/99 TIME: 1505 DIRECTION: SOUTH
TRENCH FOLLOWING FILL, GOES SOUTH TO OUTFALL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 201 PHOTOGRAPHER/WITNESS: CAARSON / BROWN
DATE: 08/10/99 TIME: 0830 DIRECTION: NORTH
RESIDENCE WITH SWING NORTH OF FILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 202 PHOTOGRAPHER/WITNESS: CARSON / BROWN
DATE: 08/10/99 TIME: 0832 DIRECTION: NORTHEAST
RESIDENCE NORTH OF FILL

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 203 PHOTOGRAPHER/WITNESS: BROWN / MITCHELL
DATE: 08/10/99 TIME: 1030 DIRECTION: NORTH
SAMPLE SD12 LOCATION

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 204 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/10/99 TIME: 1035 DIRECTION: SOUTHWEST
SAMPLE SD13 LOCATION

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 205 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/10/99 TIME: 1111 DIRECTION: NORTH
SAMPLE SD15 LOCATION

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 206 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/10/99 TIME: 1115 DIRECTION: WEST
SAMPLE SD11 LOCATION

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 207 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/10/99 TIME: 1120 DIRECTION: SOUTH
SAMPLE SD14 LOCATION

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 208 PHOTOGRAPHER/WITNESS: BROWN / MITCHELL
DATE: 08/10/99 TIME: 1125 DIRECTION: NORTHEAST
SHOTGUNCASINGS AND FOOTPRINTS

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 209 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/11/99 TIME: 0845 DIRECTION: EAST
SAMPLING LOCATION FOR SD05, PPE TO ELAM CREEK

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 210 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/11/99 TIME: 0846 DIRECTION: NORTHEAST
JUST NORTH OF SD05

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 211 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/11/99 TIME: 0910 DIRECTION: NORTH
SAMPLING LOCATION FOR SD04

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 212 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/11/99 TIME: 1005 DIRECTION: NORTH
SAMPLING LOCATION FOR SD02 WITH DRUMS IN POND IN BACKGROUND

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 213 PHOTOGRAPHER/WITNESS: BROWN / MITCHELL
DATE: 08/11/99 TIME: 1025 DIRECTION: NORTHEAST
SAMPLING LOCATION FOR SD01 AT BEGINNING OF POND

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 214 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/11/99 TIME: 1045 DIRECTION: SOUTHEAST
SAMPLING LOCATION FOR SS01

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 215 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/11/99 TIME: 1115 DIRECTION: EAST
SAMPLING LOCATION FOR SS02 AND SS03

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 216 PHOTOGRAPHER/WITNESS: BROWN / MITCHELL
DATE: 08/12/99 TIME: 0725 DIRECTION: SOUTHEAST
FISHING BOUY OFF OF ELAM CREEK

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 217 PHOTOGRAPHER/WITNESS: BROWN / MITCHELL
DATE: 08/12/99 TIME: 0745 DIRECTION: SOUTHEAST
SAMPLING LOCATION FOR SD08 AND SD09

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 218 PHOTOGRAPHER/WITNESS: BROWN / MITCHELL
DATE: 08/12/99 TIME: 0805 DIRECTION: NORTH
SAMPLING LOCATION FOR SD07

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 219 PHOTOGRAPHER/WITNESS: BROWN / MITCHELL
DATE: 08/12/99 TIME: 0815 DIRECTION: NORTH
EVIDENCE OF BEAVERS

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 220 PHOTOGRAPHER/WITNESS: BROWN / MITCHELL
DATE: 08/12/99 TIME: 0820 DIRECTION: NORTHEAST
EVIDENCE OF BEAVERS

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 221 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/12/99 TIME: 0905 DIRECTION: SOUTH
SAMPLING LOCATION FOR SD06

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 222 PHOTOGRAPHER/WITNESS: MITCHELL / SHIRES
DATE: 08/11/99 TIME: 1005 DIRECTION: SOUTH
SAMPLING LOCATION FOR SD10

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 223 PHOTOGRAPHER/WITNESS: BROWN / CARSON
DATE: 08/12/99 TIME: 1005 DIRECTION: SOUTH
SAMPLING LOCATION FOR SS04

SITE NAME: NETHERY LANDFILL TDD#: S06-9903-001
PHOTO#: 222 PHOTOGRAPHER/WITNESS: MITCHELL / SHIRES
DATE: 08/11/99 TIME: 1005 DIRECTION: SOUTH
SAMPLING LOCATION FOR SD10

B Chain-of Custody Documentation

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

SAS No. (if applicable):

Case No. 27273

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		Ø6	E&E / START		FED EX

Regional Information:

Sampler (Name): Michelle Brown

Airbill Number: 8108010870 70

Non-Superfund Program:

Sampler Signature: Michelle Brown

3. Purpose*
- Lead: ☐ SF ☐ PRP ☐ ST ☐ FED
- Early Action: ☐ CLEM ☐ PA ☐ REM ☐ RI ☑ SI ☐ ESI
- Long-Term Action: ☐ FS ☐ RD ☐ RA ☐ O&M ☐ NPLD

5. Ship To:
SWOK
1700 WEST ALBANY, SUITE C
BROKEN ARROW, OK 74012
ATTN: HARRY BORG

Site Name: NETHERY LF

City, State: DALLAS, TX

Site Spill ID:

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
FCX38	5	L	G	5	✓	✓	✓		6-156859-156861	SS-Ø1	8-11-99/10:35	MFJS8Ø	[illegible]	—
FCX39	5	L	G	5	✓	✓	✓		6-156863-156865	SS-Ø2	8-11-99/11:10	MFJS81	[illegible]	—
FCX40	5	L	G	5	✓	✓	✓		6-156867-156869	SS-Ø3	8-11-99/11:20	MFJS82	[illegible]	D of SSØ2
FCX41	5	L	G	5	✓	✓	✓		6-156871-156873	SD-Ø1	8-11-99/10:20	MFJS83	[illegible]	—
FCX42	5	L	G	5	✓	✓	✓		6-156875-156877	SD-Ø2	8-11-99/10:00	MFJS84	[illegible]	—
FCX43	5	L	G	5	✓	✓	✓		6-156879-156881	SD-Ø3	8-11-99/09:25	MFJS85	[illegible]	—
FCX44	5	L	G	5	✓	✓	✓		6-156883-156885	SD-Ø4	8-11-99/08:50	MFJS86	[illegible]	—
FCX45	5	L	G	5	✓	✓	✓		6-156887-156889	SD-Ø5	8-11-99/08:40	MFJS87	[illegible]	—
FCX46	5	L	G	5	✓	✓	✓		6-156891-156893	SD-Ø6	8-12-99/09:05	MFJS88	mo	—
FCX47	5	L	G	5	✓	✓	✓		6-156895-156897	SD-Ø7	8-12-99/08:00	MFJS89	mo	—

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
Y	1 of 2	FCX38, FCX46	[illegible]	NA

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Michelle Brown	8-12-99 14:00	FedEx			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none

A21-012-3 REV. 3/93

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EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

361828

United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

SAS No. (if applicable):

Case No. 27273

1. Project Code:
Account Code:
2. Region No.: 06
Sampling Co.: E&E/START
4. Date Shipped:
Carrier: FEDEX
Regional Information:
Sampler (Name): Michelle Brown
Airbill Number: 8108010870 70
Non-Superfund Program:
Sampler Signature: Michelle Brown
5. Ship To: SWOK 1700 WEST ALBANY, SUITE C BROKEN ARROW, OK 74012 ATTN: HARRY BORG
Site Name: NETHERY LF
City, State: DALLAS, TX
Site Spill ID:

3. Purpose*
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, ☑ SI, ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
FCX48	5	L	G	5	✓	✓	✓		6-156899-156901	SD-08	8-12-99/07:35	MFJS90	MM	—
FCX49	5	L	G	5	✓	✓	✓		6-156903-156905	SD-09	8-12-99/07:40	MFJS91	MM	D-of SD08
FCX50	5	L	G	5	✓	✓	✓		6-156907-156909	SD-10	8-12-99/09:45	MFJS92	KYL	—
FCX51	5	L	G	5	✓	✓	✓		6-156911-156913	SD-11	8-10-99/11:10	MFJS93	KYL	—
FCX52	5	L	G	5	✓	✓	✓		6-156915-156917	SD-12	8-10-99/10:22	MFJS94	KYL	—
FCX53	5	L	G	5	✓	✓	✓		6-156919-156921	SD-13	8-10-99/10:30	MFJS95	MC	—
FCX54	5	L	G	5	✓	✓	✓		6-156923-156925	SD-14	8-10-99/11:00	MFJS96	MC	—
FCX55	5	L	G	5	✓	✓	✓		6-156927-156929	SD-15	8-10-99/11:10	MFJS97	MC	—
FCX56	5	L	G	5	✓	✓	✓		6-156931-156933	SS-04	8-12-99/10:00	MFJS98	KYL	—

Shipment for Case Complete? (Y/N): Y
Page 2 of 2
Sample(s) to be Used for Laboratory QC: FCX38, FCX46
Additional Sampler Signatures: [illegible signatures]
Chain of Custody Seal Number(s): NA

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Michelle Brown	8-12-99 14:00	Fed Ex			

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none

A21-012-3 REV. 3/93

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EPA Form 9110-2

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

SAS No. (if applicable):

Case No. 27273

1. Project Code:
Account Code:
2. Region No. 06
Sampling Co. E&E/START
4. Date Shipped:
Carrier: ~~Feb~~ Fed EX (MB 8/9/99)
Regional Information:
Sampler (Name) Michelle Brown
Airbill Number 8108010870800
Non-Superfund Program:
Sampler Signature Michelle Brown
5. Ship To
DATACHEM
950 WEST LEVOY DRIVE
SALT LAKE CITY, UT 84123
ATTN: RICHARD WADE

Site Name NETHERY LF
City, State DALLAS, TX
Site Spill ID:

3. Purpose*
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, SI [checked], ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6)	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7)	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Low only: Fluoride	High only: pH	High only: Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
MFJS80	5	L	G	6		✓						6-156862	SS01	8-11-99/10:35	FCX38	PH	—
MFJS81	5	L	G	6		✓						6-156866	SS02	8-11-99/11:10	FCX39	mb	—
MFJS82	5	L	G	6		✓						6-156870	SS03	8-11-99/11:20	FCX40	mb	D of SS02
MFJS83	5	L	G	6		✓						6-156874	SD-01	8-11-99/10:20	FCX41	MM	—
MFJS84	5	L	G	6		✓						6-156878	SD-02	8-11-99/10:00	FCX42	PH	—
MFJS85	5	L	G	6		✓						6-156882	SD-03	8-11-99/9:25	FCX43	PH	—
MFJS86	5	L	G	6		✓						6-156886	SD-04	8-11-99/8:50	FCX44	PH	—
MFJS87	5	L	G	6		✓						6-156890	SD-05	8-11-99/8:40	FCX45	MM	—
MFJS88	5	L	G	6		✓						6-156894	SD-06	8-12-99/9:05	FCX46	mb	—
MFJS89	5	L	G	6		✓						6-156898	SD-07	8-12-99/8:00	FCX47	mb	

Shipment for Case Complete? (Y/N): Y
Page 1 of 2
Sample(s) to be Used for Laboratory QC: MFJS80, MFJS88
Additional Sampler Signatures: [signatures] MCarson
Chain of Custody Seal Number(s): NA

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Michelle Brown	8-12-99 14:00	FedEx			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-5 REV. 3/93

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 27273

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		06	E&E START		Fed Ex

Regional Information:

Sampler (Name): Michelle Brown

Airbill Number: 8108010870808

Non-Superfund Program:

Sampler Signature: Michelle Brown

5. Ship To: DATACHEM, 950 WEST LEVOY DRIVE, SALT LAKE CITY, UT 84123
ATTN: RICHARD WADE

3. Purpose*: Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, SI [x], ESI; Long-Term Action: FS, RD, RA, O&M, NPLD

Site Name: NETHERY LF

City, State: DALLAS, TX

Site Spill ID:

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., – = Not a QC Sample)
MFJS90	5	L	G	6		✓						6-156902	SD08	8-12-99/7:35	FCX48	MM	–
MFJS91	5	L	G	6		✓						6-156906	SD09	8-12-99/7:40	FCX49	MM	D-of SD08
MFJS92	5	L	G	6		✓						6-156910	SD10	8-12-99/9:45	FCX50	NR	–
MFJS93	5	L	G	6		✓						6-156914	SD 11	8-10-99/11:10	FCX51	NR	–
MFJS94	5	L	G	6		✓						6-156918	SD12	8-10-99/10:22	FCX52	NR	–
MFJS95	5	L	G	6		✓						6-156922	SD 13	8-10-99/10:30	FCX53	MC	–
MFJS96	5	L	G	6		✓						6-156926	SD 14	8-10-99/11:00	FCX54	MC	–
MFJS97	5	L	G	6		✓						6-156930	SD 15	8-10-99/11:10	FCX55	MC	–
MFJS98	5	L	G	6		✓						6-156934	SS-04	8-12-99/10:00	FCX56	NR	–

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
Y	2 of 2	MFJS80, MFJS88	Mike Mitchell, [illegible] McCarson	NA

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Michelle Brown	8-12-99 14:00	Fed Ex			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1

A21-012-13 REV.

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

368909

C TDD (Original and Amendments)

EPA | **Technical Direction Document Amendment** | 06-99-03-0001-B

START CONTRACT #: 68-W6-0013

Activity Type: IV.A.2 Site Inspections **Task:** large **General Task Description:** Site Inspection at Nethery Landfill in Southeast Dallas **Completion Date:** 11/20/99	**Created On:** 10/29/99 **DPO/PO:** Henry Thompson **Task Monitor:** Rhotenberry W. (214/665-8372) **Task Codes:** SI; QB
Site/Project Name: Nethery Landfill **Street Address:** South end of Jim Miller Road **County Name:** Dallas **City, State, Zip:** Dallas , Tx	**Estimated Cost :** $0.00 **Estimated Hrs:** 0 **Dedicated:** 0 **Non-Dedicated:** 0
Funds Source: CERCLA Site Assessment **DCN #(s):** SCR035 (AF2) CERCLA Site Assessment $0.00	**Deliverable:** Formal Report **Overtime:** Not Applicable **Reference:** No
TDD Expenditure Limit: $29,865.80 **Hours:** 590 **Dedicated Hours:** 590 **Non-Dedicated Hours:** 0	**Staffing:** Dedicated Staff **Priority:** Medium **Start Date:** 03/01/99

Specific Element(s): Refer to Statement of Work--08/02/94, IAW Y4 AWP (large)

Comments: This amendment (B) is to extend the completion date only. There was a delay in obtaining and validating the CLP data.

Conduct Site Inspection per SOW and EPA guidance EPA/540-R-92-021 "Guidance for Performing Site Inspections Under CERCLA" , to document the presence of any hazardous substances at the site and evaluate all contaminant migration pathways. Although the site is filled primarily with construction materials, there have been documented episodes of illegal dumping at night of unknown materials. Coordinate with the TM for a scoping meeting on 3/4/99. Review existing EPA files prior to field work.

A. TDD Created By: - Signed by William Rhotenberry/R6/USEPA/US on 10/28/99 08:18:41 AM, according

William Rhotenberry

10/28/99
Signed On:

B. Reviewed and Approved By: - Signed by Henry Thompson/R6/USEPA/US on 10/29/99 03:51:24 PM, acco

Project Officer: Henry Thompson

Henry Thompson

10/29/99
Signed On:

M. Brown

EPA

Technical Direction Document Amendment

06-99-03-0001-A

START CONTRACT #: 68-W6-0013

Activity Type: IV.A.2 Site Inspections **Task:** large **General Task Description:** Site Inspection at Nethery Landfill in Southeast Dallas **Completion Date:** 10/15/99	**Created On:** 09/01/99 **DPO/PO:** Henry Thompson **Task Monitor:** Rhotenberry W. (214/665-8372) **Task Codes:** SI; QB
Site/Project Name: Nethery Landfill **Street Address:** South end of Jim Miller Road **County Name:** Dallas **City, State, Zip:** Dallas , Tx	**Estimated Cost :** $0.00 **Estimated Hrs:** 0 **Dedicated:** 0 **Non-Dedicated:** 0
Funds Source: CERCLA Site Assessment **DCN #(s):** SCR035 (AF2) CERCLA Site Assessment $0.00	**Deliverable:** Formal Report **Overtime:** Not Applicable **Reference:** No
TDD Expenditure Limit: $29,865.80 **Hours:** 590 **Dedicated Hours:** 590 **Non-Dedicated Hours:** 0	**Staffing:** Dedicated Staff **Priority:** Medium **Start Date:** 03/01/99

Specific Element(s): Refer to Statement of Work--08/02/94, IAW Y4 AWP (large)

Comments: This amendment (A) is to extend the completion date only. There was a delay in obtaining the CLP data.

Conduct Site Inspection per SOW and EPA guidance EPA/540-R-92-021 "Guidance for Performing Site Inspections Under CERCLA" , to document the presence of any hazardous substances at the site and evaluate all contaminant migration pathways. Although the site is filled primarily with construction materials, there have been documented episodes of illegal dumping at night of unknown materials. Coordinate with the TM for a scoping meeting on 3/4/99. Review existing EPA files prior to field work.

A. TDD Created By: - Signed by William Rhotenberry/R6/USEPA/US on 09/01/99 08:57:30 AM, according

William Rhotenberry

09/01/99
Signed On:

B. Reviewed and Approved By: - Signed by Henry Thompson/R6/USEPA/US on 09/01/99 01:41:03 PM, acco

Project Officer: Henry Thompson

Henry Thompson

09/01/99
Signed On:

M. Brown

Amendment #06-99-03-0001-A Printed On 09/02/99 at 05:20:25 PM

EPA

Technical Direction Document (TDD)

06-99-03-0001

START CONTRACT #: 68-W6-0013

Activity Type: IV.A.2 Site Inspections **Task:** large **General Task Description:** Site Inspection at Nethery Landfill in Southeast Dallas **Estimated Completion Date:** 08/28/99	**Created On:** 03/02/99 **DPO/PO:** Henry Thompson **Task Monitor:** William Rhotenberry **Task Codes:** SI; QB
Site/Project Name: Nethery Landfill **Street Address:** South end of Jim Miller Road **County Name:** Dallas **City, State, Zip:** Dallas, Tx	**Estimated Cost:** $29,865.80 **Estimated Hrs:** 590 **Dedicated:**590 **Non-Dedicated:**0
Funds Source: CERCLA Site Assessment **DCN #(s):** SCR035 (AF2) CERCLA Site Assessment $29,865.80	**Deliverable:**Formal Report **Overtime:** Not Applicable **Reference:** No
TDD Expenditure Limit: $29,865.80 **Hours:** 590 **Dedicated Hours:** 590 **Non-Dedicated Hours:** 0	**Staffing:** Dedicated Staff **Priority:** Medium **Start Date:** 03/01/99

Specific Element(s): Refer to Statement of Work--08/02/94, IAW Y4 AWP (large)

Comments: Conduct Site Inspection per SOW and EPA guidance EPA/540-R-92-021 "Guidance for Performing Site Inspections Under CERCLA" , to document the presence of any hazardous substances at the site and evaluate all contaminant migration pathways. Although the site is filled primarily with construction materials, there have been documented episodes of illegal dumping at night of unknown materials. Coordinate with the TM for a scoping meeting on 3/4/99. Review existing EPA files prior to field work.

Standard Language: Coordinate with Task Monitor

A. TDD Created By: - Signed by William Rhotenberry/R6/USEPA/US on 03/01/99 05:18:52 PM, according

William Rhotenberry — **Signed On:** 03/01/99

B. Reviewed and Approved By: - Signed by Henry Thompson/R6/USEPA/US on 03/02/99 10:02:15 AM, acc

Project Officer: Henry Thompson

Signed On: 03/02/99

M. Brown
080801SIX X
80808

TDD #06-99-03-0001 Printed On 03/03/99 at 09:55:00 AM

D Photo Negatives (in START files only)

Nethery Landfill

S06-99-03-0001

Negatives

Reference 1

12-14-90
Vol. 55 No. 241

federal register

Friday
December 14, 1990

Book 2

United States
Government
Printing Office
SUPERINTENDENT
OF DOCUMENTS
Washington, DC 20402

OFFICIAL BUSINESS
Penalty for private use, $300

SECOND CLASS NEWSPAPER

Postage and Fees Paid
U.S. Government Printing Office
(ISSN 0097-6326)

Reference 2

Superfund Chemical Data Matrix-Data Manager

Developed by the Office of Emergency and Remedial Response

United States Environmental Protection Agency

June 1996

SCDM Data Set

June 1996 Version

Reference 3

Rillera 12/01/97

United States
Environmental Protection
Agency

Office of Solid Waste
and Emergency
Response

Publication 9345.1-07
PB92-963377
EPA 540-R-92-026
November 1992

Superfund

EPA

Hazard Ranking System Guidance Manual

Reference 4

climate diagnostics center NOAA

Annual mean rankings for Dallas Love Fd TX

Variable: Annual precipitation (inches)

Time range: 1961-1996

```
Highest year:      55.31 1981
Third quartile:    42.97
Median:            37.47
First quartile:    29.95
Lowest year:       17.52 1963

Mean:              37.02

Ranked list with   35 years available
```

Value	Year	Ranking
55.31	1981	1
54.74	1962	2
51.69	1991	3
48.20	1994	4
47.96	1973	5
46.81	1990	6
46.06	1989	7
43.17	1992	8
42.97	1966	9
42.68	1974	10
41.68	1982	11
40.75	1971	12
39.99	1961	13
39.33	1984	14
38.55	1969	15
37.99	1979	16
37.80	1976	17
37.47	1964	18
36.19	1968	19
35.60	1995	20
35.50	1965	21
35.47	1993	22
34.34	1970	23
32.40	1986	24

30.76	1977	25
30.20	1983	26
29.95	1985	27
28.58	1987	28
28.07	1975	29
27.76	1967	30
27.64	1988	31
25.59	1978	32
24.36	1972	33
22.67	1980	34
17.52	1963	35

US Climate Pages
NOAA-CIRES Climate Diagnostics Center
Document maintained by Cathy Smith (cas@cdc.noaa.gov)
Created Sep 16, 1999 18:46 GMT
http://www.cdc.noaa.gov/cgi-bin/rankall.calc.pl

Reference 5

ENVIRONMENTAL MATERIALS, INC.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
STORMWATER POLLUTION PREVENTION PLAN

NETHERY RECYCLING FACILITY
500 DEEPWOOD STREET
DALLAS, TEXAS 75217

Submitted to:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733

Prepared by:

Environmental Materials, Inc.
9900 North Central Expressway, Suite 301
Dallas, Texas 75231
(214) 361-8185

November 22, 1996
Project #9611850

Written by:

Collin D. Flatt
V.P., Operations

Reviewed by:

H. Edward Zinsmeyer
Environmental Scientist

ENVIRONMENTAL MATERIALS, INC.

TABLE OF CONTENTS
Stormwater Pollution Prevention Plan
Nethery Recycling Facility
Dallas, Texas 75217

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1.0 INTRODUCTION

The Environmental Protection Agency (EPA) published regulations in November 1990 to control stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) permit program. In September of 1992 the EPA published a final NPDES general permit for stormwater discharges associated with industrial activity. Stormwater dischargers associated with industrial activity seeking coverage under the general permit are required to develop and implement stormwater pollution prevention plans. The objectives of these plans are:

- to identify potential sources of pollution which may affect the quality of stormwater discharges; and
- to describe and ensure implementation of best management practices to minimize and control pollutants in stormwater discharge associated with facility activities.

This storm water pollution prevention plan addresses the operations of the Nethery Recycling Facility (Nethery) located at 500 Deepwood Street, Dallas, Texas. This facility receives recyclable materials in the form of construction debris (SIC Code 5093).

1.1 General Facility Information

Name of Facility: Nethery Recycling Facility

Facility Address: 500 Deepwood Street

Mailing Address: 915 Oak Park Drive
Dallas, Texas 75232-1235

Facility Contact: Herman L. Gibbons
Herman Nethery

Standard Industrial Classification Code: 5093

NPDES Stormwater Discharge Permit: Applied for but not yet received

Permitting Agency: Environmental Protection Agency, Region VI
Permit No.: __________
Effective Dates: 1996 through 2001

2.0 POLLUTION PREVENTION TEAM

The Stormwater Pollution Prevention Team is responsible for developing, implementing, maintaining and revising this plan. The members of the team are familiar with different aspects of the management and operations of the facility. The members of the team are:

Herman Nethery

Herman Gibbons

Clyde Walker

Efphraim Garcia

Collin D. Flatt

Team Member Responsibilities:

Herman Nethery: Signatory authority, responsible for overall coordination of plan implementation.

Herman Gibbons, Facility Manager: Responsible for coordinating inspections, noting and reporting any plan changes, maintaining all inspection records and other documents.

Clyde Walker, Facility Supervisor: Responsible for coordinating the employee training program and for overseeing good housekeeping and material handling practices. Generally responsible for plan implementation.

Efphraim Garcia: Responsible for inspecting and approving all wastes received by the facility.

Collin D. Flatt, Environmental Consultant: Responsible for developing plan elements, evaluation and revision of plan when necessary, coordinating the annual Comprehensive Compliance Evaluation.

3.0 DESCRIPTION OF POTENTIAL POLLUTANT SOURCES

3.1 Site Map

Figure 1, Site Map, illustrates the features of the site, as required by the Permit:

- Locations of outfall where stormwater is discharged from the property
- Arrows showing drainage patterns
- Locations where significant construction debris is exposed to stormwater
- Locations where processing equipment is exposed to stormwater
- Location of material loading/unloading areas
- Location of vehicle maintenance and cleaning areas
- Waste storage or disposal areas
- Location of liquid, fuel or chemical storage tanks
- Types of pollutants likely to be present in discharges

3.2 Description of Outfall and Drainage Patterns

The Nethery facility can be described as three primary areas. The three areas will be referenced as the North Side Disposal Area, the South Side and the West Side.

The North Side Disposal Area consists of:

- East Pond
- East office building and receiving.
- Landfill cells

The North Side Disposal Area comprises approximately 35 acres.

The South Side consists of:

- Low-lying areas not utilized in the day to day operations of the facility.

The South Side comprises approximately 24 acres.

The West Side consists of:

- Low lying areas of the facility, limited use as current disposal area. Planned disposal cell development in the future.

The West Side comprises approximately 25 acres.

Total area of the Nethery facility is approximately 84 acres.

Three stormwater discharge points have been identified and are labeled as Outfall 1 through Outfall 3 on the site map.

- **Outfall #1** is located near the northeast corner of the property. This outfall collects discharges from the northeast side of the North Side Disposal Area. The discharge from this outfall initiates in the East Pond and discharges during rainfall events at the south end of the pond via a concrete culvert. Flow from this outfall enters Elam Creek approximately 0.25 mile southeast of the property and ultimately enters the Trinity River.

- **Outfall #2** is located near the south central portion of the South Side and drains the central portion of the Disposal Area as well as the low-lying areas of the South Side. Discharges only occur during significant rainfall events and is characterized as sheet flow discharge. The discharge area is primarily covered in native grasses and scrub vegetation. This drainage exits the property and enters the Trinity River approximately 200 feet south of the property boundary.

- **Outfall #3** is located near the southwestern corner of the property and consists primarily of native grasses. This discharge area drains the West Side and run-off initiating from the western edge of the North Side Disposal Area. The drainage from this outfall exits the property as sheet wash discharge along the southwest side of the property and enters the Trinity River approximately 750 feet south of the property.

No other documented outfall was identified during routine inspections. None of the outfall identified on the property flows with potential for significant erosion.

The types of pollutants which are potentially present in stormwater discharges associated with the activity at this facility are detailed in Section 3.6.

3.3 Inventory of Exposed Material

The NPDES general permit requires an inventory and narrative description of significant materials that have been handled, treated, stored or disposed of in a manner to allow exposure to stormwater between the date of this permit and three years prior. This description is to include the method and location of material storage, practices employed to minimize contact with stormwater runoff, and a description of any treatment the stormwater receives.

Nethery Recycling Facility receives unwanted debris generated from construction/demolition projects performed by Nethery and other local contractors. Facility operations consist of the disposal and subsequent processing of various debris, including wood, asphalt roofing shingles, soil and rock, concrete, brick and sheet metal. These materials are land filled in the North Side Disposal Area. Disposal activities include the placement and compaction of materials, which are periodically covered with soil. Fill materials are normally covered with soil on a daily basis. The area of the landfill is shaped to discourage drainage from the landfill area. The majority of stormwater which comes in contact with the construction debris is therefore contained within the area of the landfill, and percolates through the alternating layers of soil and debris.

The debris accepted by Nethery is recycled after a burial period of approximately five to seven years. The recycling process consists of the grinding and segregation of the land filled materials. The segregated materials are sold as various types of mulch and fill.

Nethery Recycling Facility receives an average of 100 tons of material per day. The facility is operated six days a week, with the exception of Christmas Day and New Year's Day. This rate of accepted waste volume equates to approximately 31,000 total tons per year.

The facility has been in operation since March of 1994. During the three prior years (actually 29 months of operation), Nethery estimates that the average fill rate of the facility was 100 tons per day; therefore, the total volume of debris exposed to stormwater run-off during the past three years is approximately 75,000 tons.

The garbage generated by the facility is collected in a truck which is parked on the north side of the landfill area. The garbage collected at the facility consists of municipal waste that is sometimes included in the loads of construction debris transported to Nethery. This garbage is separated from the construction debris by the facility load inspector and placed in the truck. The garbage collected in this truck is periodically hauled to the City of Dallas McCommas landfill.

The East Office Building is the only improvement to the property. This area is used for receiving/inspection of all materials. Routine maintenance performed on vehicles and equipment stationed at the landfill is completed by landfill personnel who have been instructed to properly containerize all fluids generated by the maintenance, including used oil, fuel and anti-freeze.

The fluids generated from maintenance activities are segregated and placed in closed top 55-gallon drums. The drums are stored in an area south of the east office building until they can be properly disposed or recycled. All fluids removed from the facility are properly manifested and copies of the manifests are retained in the East Office Building. Empty petroleum containers are also stored in an area located immediately south of the East Office Building. Used oil and other fluids collected by the facility are periodically picked up by a recycling company.

Table 1 lists all significant materials and potential pollutant sources that might be exposed to stormwater at this facility. Where appropriate, existing management practices utilized to reduce exposure of these materials to stormwater are listed in Table 1, Inventory of Exposed Materials.

TABLE 1
INVENTORY OF EXPOSED MATERIALS

Location	Material	Storage Method	Stormwater Management Practices, Structural/ Non-Structural Control
North Side Landfill Area	construction debris	outside, normally covered with soil on a daily basis	landfill area shaped to discourage stormwater run-off and encourage rainwater to percolate through land filled materials
North Side Landfill Area	used oil and other waste fluids	outside, immediately south of the East Office Building, in sealed containers	Periodically collected by waste oil recycling company

Note: "significant materials" as defined in 40 CFR 122 26(b)(12), are substances related to industrial activities such as process chemicals, raw materials, fuels, pesticides, and fertilizers (exposed to rain)

3.4 Significant Spills or Leaks

Significant spills or leaks include, but are not limited to, releases of oil, motor fuels, or hazardous substances in excess of reportable quantities. No evidence of spills or leaks was observed during inspection of the property. On site management reported that the facility has not experienced any spills or leaks over the past three years (29 months) of operation.

3.5 Existing Stormwater Sampling Data

As of the date this plan was prepared, the stormwater discharge from this facility has not been sampled during a rainfall event.

3.6 Summary of Potential Pollutant Sources

Based on the inventory of exposed significant materials, potential sources of pollutants have been identified. These sources are listed below, followed by potential pollutants of concern.

- Construction debris: No suspected potential pollutants.
- Waste grinder/crusher: Benzene, toluene, ethyl benzene and xylene (BTEX), oil and grease, metals, total suspended solids (TSS).
- Mobile handling equipment, such as bulldozers and loaders: BTEX, oil and grease, metals, TSS.
- Truck and vehicle parking: oil & grease, BTEX, metals, TSS.
- Garbage Collection Area: oil & grease, metals, phenols, TSS.

4.0 BEST MANAGEMENT PRACTICES

Stormwater management controls, or best management practices (BMPs), will be implemented to reduce the amount of pollutants in stormwater discharged from the Nethery facility. The following categories of BMPs will be implemented at this facility:

- Operational Controls
- Good Housekeeping Practices
- Preventive Maintenance Measures
- Spill Prevention and Response Procedures
- Facility Inspections

- Employee Training
- Sediment and Erosion Controls
- Runoff Management Controls

4.1 Operational Controls

1) Containment systems such as a concrete pad with berms shall be provided, where practicable, under the hydraulic systems of stationary processing equipment. Runoff from such bermed areas will be discharged into a sump, oil/water separator, sanitary sewer, or other appropriate drainage systems as applicable.

2) Maintain dry, clean working surfaces by using brooms, shovels, vacuum cleaners or cleaning machines.

3) Liquid wastes, including used oil, shall be stored in labeled non-leaking containers and hauled off-site for proper disposal or recycling in accordance with all requirements under the Resource Conservation and Recovery Act (RCRA) and applicable state and local laws.

4.2 Good Housekeeping Practices

Good housekeeping practices are intended to maintain a clean and orderly facility, thus limiting the exposure of potential pollutant sources to stormwater. The following specific good housekeeping BMPs will be implemented at this facility:

1) All accessible parts of the yard will be kept free of garbage and waste material.

2) Fuel oil will not be applied for dust control.

3) All drums/containers used to store chemicals or hazardous materials will be properly labeled.

4) Well organized work areas will be maintained throughout the facility.

4.3 Preventive Maintenance Measures

1) A Preventive Maintenance program for equipment and vehicles is currently implemented at this facility. The stormwater preventive maintenance program will expand upon the existing program, incorporating stormwater considerations and maintenance of stormwater management devices. The Pollution Prevention Team will be responsible for implementing necessary changes to the existing program, including training employees responsible for preventive maintenance to recognize stormwater considerations.

2) The preventive maintenance program includes:

- The regular inspection and cleaning of equipment;
- Lubricating, testing, and replacing worn or broken parts;
- Knowledge of applicable MSDS information

Employees responsible for inspection and maintenance of equipment and vehicles will be made aware of relevant aspects of this Stormwater Pollution Prevention Plan. They will conduct regular inspection and maintenance of all equipment and vehicles used or stored outdoors, and inspection of all stormwater management devices.

3) Processing equipment and vehicles used or stored outside shall be kept clean by frequently removing accumulated oil and grease that may be exposed to stormwater (except where needed for proper operation of the equipment) or that may hide equipment trouble spots. Appropriate maintenance of such equipment will be performed on a regular basis.

4.4 Spill Prevention and Response Procedures

1) Contain and repair all significant leaks and spills as soon as practicable and, if applicable, install leak detection devices.

2) Use dry cleanup methods, where appropriate, on all leaks and spills. An adequate supply of absorbent material (such as "Oil Dry") will be maintained on-site. Used absorbent material will be swept up and properly disposed of as soon as possible. The source of the leak will be investigated and repaired as soon as practicable. If spills occur on soil the impacted soil will be removed with a shovel or other appropriate tools or machinery and stored in 55-gallon drums, pending characterization and disposal.

3) Drums containing liquids, such as petroleum products and lubricating oil, will be stored indoors. A shelter will be constructed south of the East Office Building to provide a covered storage area for petroleum products.

4) Drip pans or similar containers will be used to capture any petroleum or chemical leaks from stationary equipment until the leak is repaired. The drip pans must be inspected for leaks and checked for potential overflow and they will be emptied and cleaned regularly.

6) Recycle, reuse and reduce process materials to minimize waste generated onsite.

4.5 Facility Inspections

1) Regular inspections will be conducted by the designated member(s) of the Stormwater Pollution Prevention Team. These inspections will be conducted at least quarterly, and one can be done in conjunction with the Comprehensive Site Compliance Evaluation (Section 6.0). Inspections of the facility should also be conducted following all rainfall events in excess of 0.5 inches. Written documentation of these inspections is required, and should be attached to this plan. The Facility Manager will ensure that appropriate actions are taken in response to the inspections. Based on the observations and evaluations made during the inspection, this plan will be revised as necessary by the designated Pollution Prevention Team member.

2) All areas of the facility that could potentially introduce pollutants into stormwater will be inspected and their condition documented. At a minimum, the following areas will be inspected:
   - Materials unloading and loading areas which are exposed to stormwater;
   - Equipment and vehicle maintenance areas;
   - Any stormwater controls implemented at the facility;
   - Areas where waste is generated, stored, or exposed to stormwater; and
   - Each outfall area will be inspected for signs of erosion and condition of discharge, if any.

3) Any spills or leaks identified during the visual inspection will be immediately addressed according to Spill Prevention and Response BMPs. Any deterioration or damage to stormwater controls (concrete pads, berms, sumps) will be repaired as soon as possible.

4) Preventive maintenance inspections can be conducted as a part of the regular visual inspection. All inspections will be documented. Inspection records must show: when the inspection occurred, who conducted the inspection, what areas were inspected, what problems were found, steps taken to correct any problems, and who was notified.

   The Facility Manager or Pollution Prevention Team member responsible for inspections will make certain that a timely inspection was conducted and the appropriate documentation exists. Record keeping will include, at a minimum, the following items.

   - Record and document all spills
   - Monitoring and maintenance activities
   - Timely reporting of stormwater management related information to appropriate facility personnel.

The following inspection form has been generated to simplify the inspection process. This form may be altered as changing facility conditions dictate.

STORMWATER POLLUTION PREVENTION PLAN INSPECTION
Nethery Recycling Facility
500 Deepwood Street
Dallas, Texas 75217

Inspection conducted by:____________________ Date:________

EQUIPMENT

Visually inspect all storage and processing areas exposed to stormwater for spills, hydraulic oil leaks, or any conditions that could contaminate stormwater runoff. Check the integrity of any stormwater controls (concrete pads, curbs, sumps, oil/water separators).

Initials:__________ Comments:
____
____

Person Notified: ____________________
Results, Actions Taken:
____
____

STORAGE AREAS

Visually inspect outdoor ferrous and non ferrous storage areas for conditions that could contaminate stormwater runoff from these areas. Note any accumulations of oily raw material, unidentified liquids or residues, suspicious items, and undesirable items (batteries, capacitors, hazardous materials, etc.).

Initials:__________ Comments:
____
____

Person Notified: ____________________
Results, Actions Taken:
____
____

FUELING STATIONS, VEHICLE MAINTENANCE AREA

Inspect all AST areas that are potentially exposed to stormwater (fuel trucks). Inspect all areas where vehicle and equipment maintenance is conducted outside, if any. Note any leaks, spills, open containers of oil, or other conditions that could contaminate runoff. Inspect all containment structures.

Initials:__________ Comments:
____
____

Person Notified: ____________________
Results, Actions Taken:
____
____

STORMWATER POLLUTION PREVENTION INSPECTION (CONTINUED)

OUTFALL #1

Visually inspect the concrete conduit spillway of the East Pond. Note any accumulations of oily sheen behind the spillway or in the discharge area. Inspect the pond for unidentified liquids or residues or suspicious items.

Initials:__________ Comments:

____

____

Person Notified: __________________
Results, Actions Taken:

____

____

OUTFALL #2

Visually inspect the outfall area for any sheen or unidentified liquids or suspicious items. Check the general area where water discharges from the facility for erosion or potential future erosion.

Initials:__________ Comments:

____

____

Person Notified: __________________
Results, Actions Taken:

____

____

OUTFALL #3

Visually inspect the outfall area for any sheen or unidentified liquids or suspicious items. Check the general area where water discharges from the facility for erosion or potential future erosion.

Initials:__________ Comments:

____

____

Person Notified: __________________
Results, Actions Taken:

____

____

For problems noted above, describe who was notified and steps taken to remedy the problems:

4.6 Employee Training

1) A training and education program will be implemented for employees of the facility that addresses conditions that cause pollution, use of the BMPs presented in this plan, and proper scrap inspection handling and storage procedures.

2) Employee Training appropriate to their job function will be provided for: truck drivers, supervisors and operating personnel. Training will take place in several stages: prior to job assignment, during initial operation of the plan, and ongoing. Ongoing training will take place in conjunction with regularly scheduled safety meetings.

   The training program will address, at a minimum, the following items:

   - Best Management Practices to be implemented at the facility;
   - How to identify potential problem areas;
   - Proper handling and storage procedures;
   - Procedures to follow in the event of a spill or leak;
   - Review of preventive maintenance requirements;
   - Review of the Stormwater Pollution Prevention Plan and its requirements.

3) A roster of employees attending the initial training will be attached to this plan. Documentation of all subsequent training will also be included in this plan or will be readily available for inspection. If additional training is conducted in conjunction with regularly scheduled safety meetings, the safety meeting roster will suffice for documentation.

4.7 Sediment and Erosion Control

One area of moderate erosion was noted on the south side of the landfill road near the eastern boundary of the fill area. EMI recommends controlling this small area of erosion by grading and covering this area of drainage with gravel. If, at a later date, any other areas with a high potential for soil erosion are identified, appropriate measures will be selected to limit the erosion. Measures considered may include, but are not limited to: paving or use of gravel to minimize soil exposure, diversions of water flow, vegetative practices, seeding, mulching, buffer zones and straw bale barriers.

4.8 Runoff Management Controls

It is anticipated that the above listed operational controls, good housekeeping practices, preventive maintenance measures and spill prevention and response procedures will achieve a sufficient level of pollution control. If, at a later date, it is determined that existing BMPs may not be sufficient to minimize pollutant loadings in stormwater, then additional stormwater management practices may be implemented. An indication that such measures should be considered include: sediment deposition, oil sheens, or obvious sources of pollution. Additional measures could include, but are not limited to: berms, sediment filter boom, grassed buffer strips or swales, and oil/water separators.

5.0 NON STORMWATER DISCHARGES

5.1 Authorized Non-Stormwater Discharges

1) The following non-stormwater discharges are authorized by the General Permit:

- Discharges from fire fighting activities
- Fire hydrant flushes
- Potable water sources including waterline flushes
- Irrigation drainage
- Lawn or vegetation watering
- Uncontaminated groundwater
- Foundation or footing drains where flows are not contaminated with process water
- Discharges from springs
- Routing exterior building wash down which does not use detergents
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred and where detergents are not used
- Air conditioning condensate

5.2 Certification of Evaluation of Non-Stormwater Discharge

This plan includes a certification that the stormwater discharge has been evaluated for the presence of non-stormwater discharges other than those specified above. The certification is based on visual inspection of all discharge points on numerous occasions during dry weather.

The attached **Evaluation of Non-Stormwater Discharges** includes a description of the method used to evaluate the discharge, the date of evaluation, and the person conducting the test. Discharge points at this facility are labeled on the site map as Outfall #1, #2 and #3. The perimeter of the landfill area was also inspected for non-stormwater discharges.

TABLE 2
NON-STORMWATER DISCHARGE
EVALUATION AND CERTIFICATION

Date of Test	Outfall Tested	Method Used to Evaluate Non-Stormwater Discharge	Describe Results of Test	Potential Sources of Discharge	Name of Tester
10/14/96	Outfall #1	Visual inspection	No discharge	Rainfall	Collin Flatt
10/14/96	Outfall #2	Visual inspection	No discharge	Rainfall	Collin Flatt
10/14/96	Outfall #3	Visual inspection	No discharge	Rainfall	Collin Flatt
10/14/96	Perimeter of landfill area	Visual inspection	No discharge	Rainfall	Collin Flatt

CERTIFICATION OF EVALUATION OF NON-STORMWATER DISCHARGES

I certify under penalty of law that the stormwater drainage system described in this Stormwater Pollution Prevention Plan has been tested or evaluated for the presence of non-stormwater discharge under my direction or supervision in accordance with a program designed to ensure that qualified personnel properly gather and evaluate the information presented above. Based upon my inquiry of the person or persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for knowing violations.

Herman Nethery
Signatory Authority
Herman Nethery
Signature
11/26/96
Date

Herman Gibbons
Facility Manager
Herman Gibbons
Signature
11/26/96
Date

6.0 COMPREHENSIVE SITE COMPLIANCE EVALUATION

A member of the Stormwater Pollution Prevention Team shall conduct a comprehensive site compliance evaluation at least once a year. This evaluation will consist of:

1) A visual inspection of stormwater drainage areas for evidence of pollutants entering the drainage system.
2) An evaluation of the effectiveness of measures to reduce pollutants, to determine if additional measures are needed.
3) An observation of structural measures and other stormwater controls to ensure they are operating properly.
4) An inspection of all equipment needed to implement the plan, such as spill response equipment.

Based on the evaluation of pollutant sources and pollution prevention controls, this plan will be revised if necessary within two weeks of the inspection. Any changes necessary will be implemented within 12 weeks of the inspection.

A report summarizing the inspection results, follow up actions taken and the date and personnel who conducted the inspection will be prepared. This report will also document all incidents of noncompliance, or a certification that the facility is in compliance with the plan. The report must be signed by a company officer or someone with designated signatory authority, according to the certification described in section 7.0.

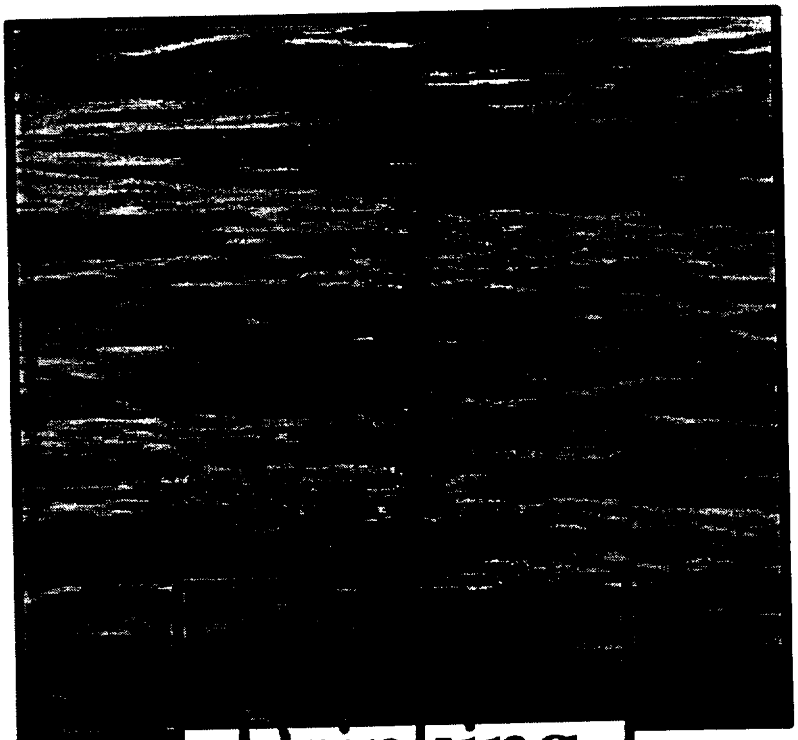
7.0 REQUIRED SIGNATURE

Any person signing documents under the NPDES General Permit for Stormwater Discharge Associated With Industrial Activity, including this Stormwater Pollution Prevention Plan for Nethery Recycling Facility, 500 Deep Wood Street, Dallas, Texas, shall make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Herman Nethery	Herman Gibbons
Signatory Authority	Facility Manager
Herman Nethery	Herman Gibbons
Signature	Signature
11/21/96	11/26/96
Date	Date

Reference 6



Drinking Water Quality

1998 Report

dallas water utilities
city of dallas

Customer Service 214/651-1441
Water Quality Information 214/670-0900

En Español

Este documento contiene información importante sobre su agua potable.
Para obtener una copia de esta información en Español,
por favor llame al número 214/651-1441.

Published July 1999

Table of Contents

Your participation is welcome

Dallas Water Utilities (DWU) is a not-for-profit department of the City of Dallas and is governed by the Dallas City Council. The City Council meets weekly on Wednesdays. For information about meetings and how to register as a speaker, contact the City Secretary's office at 214/670-3738. Following are other helpful telephone numbers:

- Questions or concerns about water quality - 214/670-0900;
- To request a speaker for your group - 214/670-4022;
- Questions about your bill - 214/651-1441;
- For inquiries about public participation in DWU projects - 214/670-4297;
- For brochures on water conservation or pollution prevention - 214/670-3155.

Free water treatment plant tours are available for groups on weekdays during the daytime. Tours are restricted as to size, age and number of participants. Please call in advance to schedule (214/670-0900).

This report was mailed to all Dallas Water Utilities customers.
The report is available in Dallas public libraries and recreation centers and is on the City of Dallas website www.ci.dallas.tx.us

If you know someone who did not receive a copy, we'll be happy to send one.

For additional copies or to comment on this report, call 214/670-3155 or contact:
DWU Community Relations,
City Hall, 1500 Marilla, 5AS
Dallas, TX 75201

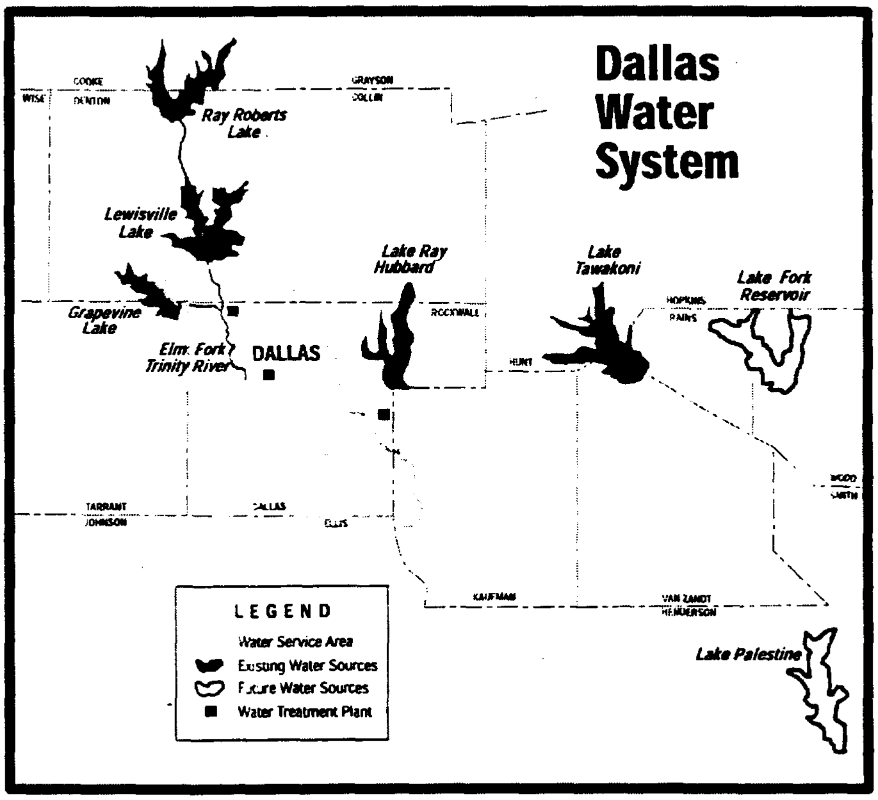
Printed on recycled paper

City of Dallas
Publication No. 98/99-55

Your water sources

Dallas uses surface water from six sources: the Elm Fork of the Trinity River and Lakes Ray Roberts, Lewisville, Grapevine, Ray Hubbard and Tawakoni. In addition, Dallas has water rights in Lakes Fork and Palestine to meet future needs. Pipelines will need to be constructed to connect these two lakes to the Dallas system. The City of Dallas regularly reviews its Long Range Water Supply Plan to address issues such as future sources of water. This planning, along with wise water use, will ensure an adequate supply of water for future needs.

DWU has an active Watershed Management Program that performed more than 8,000 tests on the water quality in the rivers, streams and reservoirs in 1998. In addition, the City of Dallas' storm water quality and industrial pretreatment programs help prevent pollution. As water travels over the surface of the land, it dissolves naturally occurring minerals and can be polluted by animals or human activity. The presence of any of these pollutants in the untreated water does not necessarily pose a health risk in your drinking water. The Texas Natural Resource Conservation Commission will be reviewing all of Texas' drinking water sources. This source water assessment process will be completed in three years. Dallas' current treatment techniques have proven effective in removing these pollutants. The City of Dallas will continue to commit the resources needed to ensure proper treatment and delivery of high quality water to its customers.



Reference 7

U.S. DEPARTMENT OF COMMERCE
LUTHER H. HODGES, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

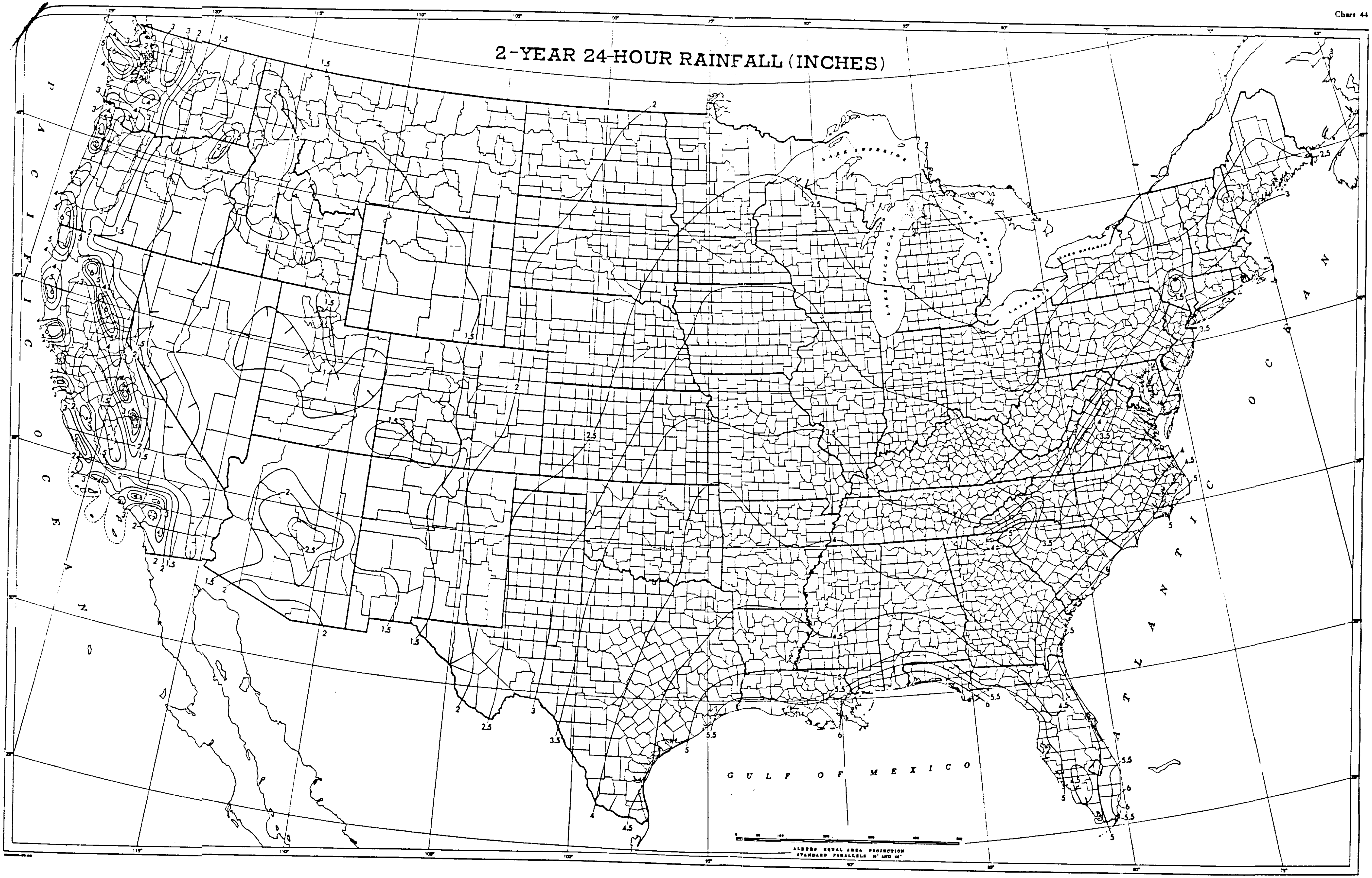
Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division

for

Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

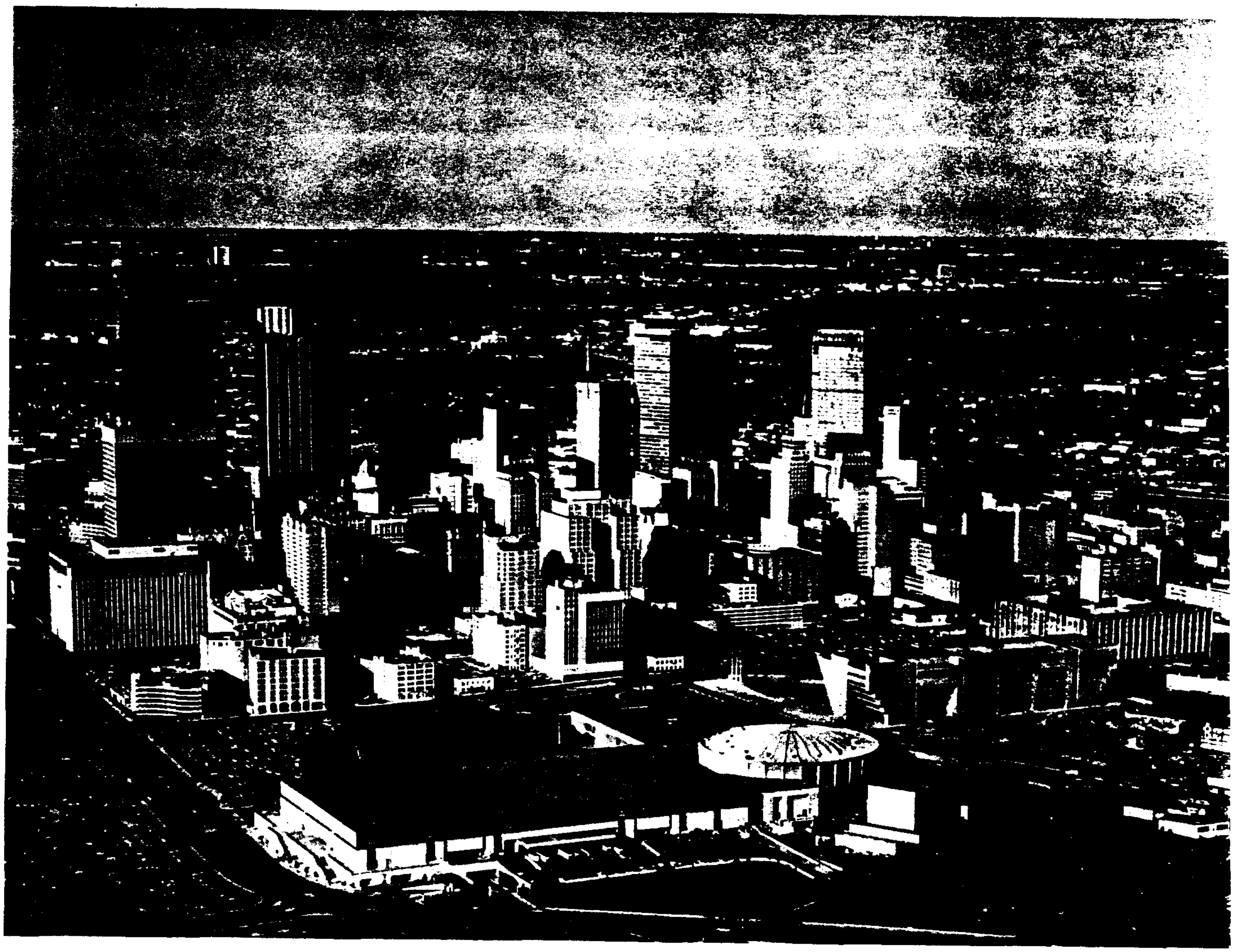
WASHINGTON, D.C.
May 1961
Repaginated and Reprinted January 1963

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. Price $1.25


2-YEAR 24-HOUR RAINFALL (INCHES)
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ERIE
LAKE ONTARIO
ALBERS EQUAL AREA PROJECTION
STANDARD PARALLELS 29° AND 45°

Reference 8

United States Department of Agriculture
Soil Conservation Service
in cooperation with
Texas Agricultural Experiment Station



soil survey of

Dallas County, Texas

cultivated farm crops has been used for urban development. The rest of the good cropland is also in danger of being converted to residential developments because it is nearly level to gently sloping and has few limitations to this development.

In recent years, less cropland has been used for row crops and more has been converted to grazing land. In the soil survey of 1924 (*4*), about 90 percent of the county was cultivated. Today, only about 25 percent is used for crops. Near the housing developments, many acres that were once cultivated are now idle and awaiting development. Most of this land has high or medium potential for use as cropland.

The one map unit in Dallas County that has very low potential for urban uses is the Trinity-Frio map unit. Because of the hazard of flooding, urban development on this land would be expensive. The soils in the Houston Black-Heiden, Eddy-Stephen-Austin, Austin-Houston Black, Wilson-Rader-Axtell, and Ferris-Heiden map units can be developed for urban use at a lower cost than can those in the Trinity-Frio map unit. The main limitations of these soils to urban uses are the high or very high shrink-swell potential, low soil strength, and high corrosivity to uncoated steel.

In addition to these limitations, the Eddy, Austin, and Stephen soils are limited by shallowness to bedrock. These soils have limestone bedrock at a depth of 5 to 40 inches; however, the rock is rippable and makes a good foundation for most structures. Except for the Eddy soils, all of these soils have high or medium potential for use as cropland or pasture.

The soils in the Silawa-Silstid-Bastsil map unit are well suited to urban uses. Some areas of this unit and of the Wilson-Rader-Axtell unit are wooded and are highly valued for residential development. Most areas of the Eddy-Stephen-Austin map unit are covered with trees and shrubs; in some areas of this unit, the land is steep and broken, providing striking scenery. The soils in the Eddy-Stephen-Austin map unit also are highly valued for residential development; however, because they are shallow and have unstable slopes, these soils have only medium potential for this use.

Most of the soils in Dallas County have low potential for recreation uses. The only soils that have high potential for recreation uses are those in the Silawa-Silstid-Bastsil map unit. The other soils in the county are too clayey, have slow permeability, are subject to flooding, or are shallow to bedrock.

Most of the soils in the county have low potential for sanitary facilities. The main limitations, especially to septic tank absorption fields, are the slow absorption of effluent and the shallowness of the soils to bedrock.

Soil maps for detailed planning

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil, a brief description of the soil profile, and a listing of the principal hazards and limitations to be considered in planning management.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Austin silty clay, 1 to 3 percent slopes, is one of several phases in the Austin series.

Some map units are made up of two or more major soils. These map units are called soil complexes.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Eddy-Brackett complex, 8 to 20 percent slopes, is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

Table 5 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

Soil descriptions

1—Altoga silty clay, 5 to 12 percent slopes, eroded. This is a deep, well drained, sloping to strongly sloping soil on escarpments of stream terraces. The areas are long and narrow to oval and range from 10 to more than 100 acres. In most areas, the original surface layer has been removed by sheet erosion. Rills and small gullies are common.

Typically, the surface layer is moderately alkaline, light yellowish brown silty clay about 4 inches thick. It is underlain, to a depth of 25 inches, by moderately alkaline, very pale brown silty clay that has fine yellowish brown mottles. To a depth of 65 inches, the soil is moderately alkaline silty clay that is mottled yellowish brown in the upper part and light brownish gray in the lower part. To a depth of 80 inches, it is moderately alkaline, brownish yellow silty clay loam.

Permeability is moderate, and the available water capacity is high. Runoff is medium. The hazard of erosion is severe.

Included in mapping are small areas of Ferris, Heiden, isville, and Sunev soils. The included soils make up less than 15 percent of the mapped areas.

This soil is used as pasture and for urban development. Because of the erosion hazard it is not suitable for cultivation.

This soil has medium potential for use as pasture. Runoff, erosion, and the high content of calcium carbonate are the main limitations.

This soil has low potential for urban development. The high shrink-swell potential, low soil strength, corrosivity, and the hazard of erosion are limitations to urban use.

This soil is in capability subclass VIe and in the Clay Loam range site.

2—Arents, loamy, gently undulating. This map unit is made up of areas that have been mined for gravel and sand. Piles of discarded overburden and remaining soil material have been smoothed, and most pits have been d with soil material. The areas are lower than the surrounding landscape. Slopes range from 1 to 5 percent. The areas are rectangular and range from 20 to several hundred acres.

Because of mixing during mining operations, these soils do not have uniform layers. In places, there are fragments of soil layers. These soils are mainly sandy clay loam, clay loam, loam, or fine sandy loam in the upper 80 inches. Quartz pebbles are few to common throughout.

The organic matter content is low. Permeability is moderate. The water table is at a depth of 10 to 25 feet. Most areas are subject to flooding unless protected by levees.

Included in mapping are small areas of Bastsil, Dutek, Silawa, Silstid, and Trinity soils. Also included are areas of water in the deeper pits and areas where the surface is covered with thin layers of gravel or sand.

The soils in this map unit are used as pasture and for urban uses, including light industry, race tracks, golf driving ranges, sanitary landfills, and residential areas.

These soils have medium potential for use as pasture. Because of the low organic matter content, fertilizer is needed for good forage production.

These soils have low potential for urban development. The hazard of flooding in most areas is a limitation, but flooding can be controlled by levees or other flood-control structures. Corrosivity to uncoated steel also is a limitation.

This map unit was not assigned to a capability subclass or a range site.

3—Arents, loamy, hilly. This map unit consists of the discarded overburden of mining operations. The overburden has been left in mounds and ridges in the gravel pits. The areas are rectangular and range from 15 to several hundred acres. Slopes range from 10 to 30 percent. The pits contain areas of water that make up 5 to 25 percent of most mapped areas.

Typically, the soil material, to a depth of 80 inches, is moderately alkaline, light yellowish brown gravelly sandy clay loam. There are fragments of soil layers throughout.

Included in mapping are small areas of Bastsil, Dutek, Frio, Silstid, and Trinity soils. Also included are areas where thin layers of gravel or sand are on the surface. The included soils make up less than 15 percent of the mapped areas.

Permeability is moderate, and the available water capacity is medium. Runoff is rapid. The hazard of erosion is severe.

Most areas of this map unit are idle. A few areas are grazed. These soils have medium potential for use as pasture. The hilly slopes and the inaccessibility of the areas to livestock are limitations to use as pasture.

These soils have very low potential for urban development. The hazard of flooding in most areas is a major limitation, but flooding can be controlled by levees or other flood-control structures. The slopes of the ridges and mounds are a limitation; this limitation can be overcome by land leveling and smoothing. The corrosivity to uncoated steel also is a limitation.

This map unit was not assigned to a capability subclass or a range site.

4—Arents, clayey, gently undulating. This map unit consists of clayey soil material removed from nearby road cuts, borrow pits, or drainage ditches. This material has been piled into mounds several feet high. The areas are rectangular and range from 15 to 75 acres.

Typically, the soil material is dark brown, calcareous clay. It has many clods and bodies consisting of very dark brown and very dark grayish brown fragments of surface soil. In a few places, pebbles and broken concrete make up as much as 25 percent of the soil material.

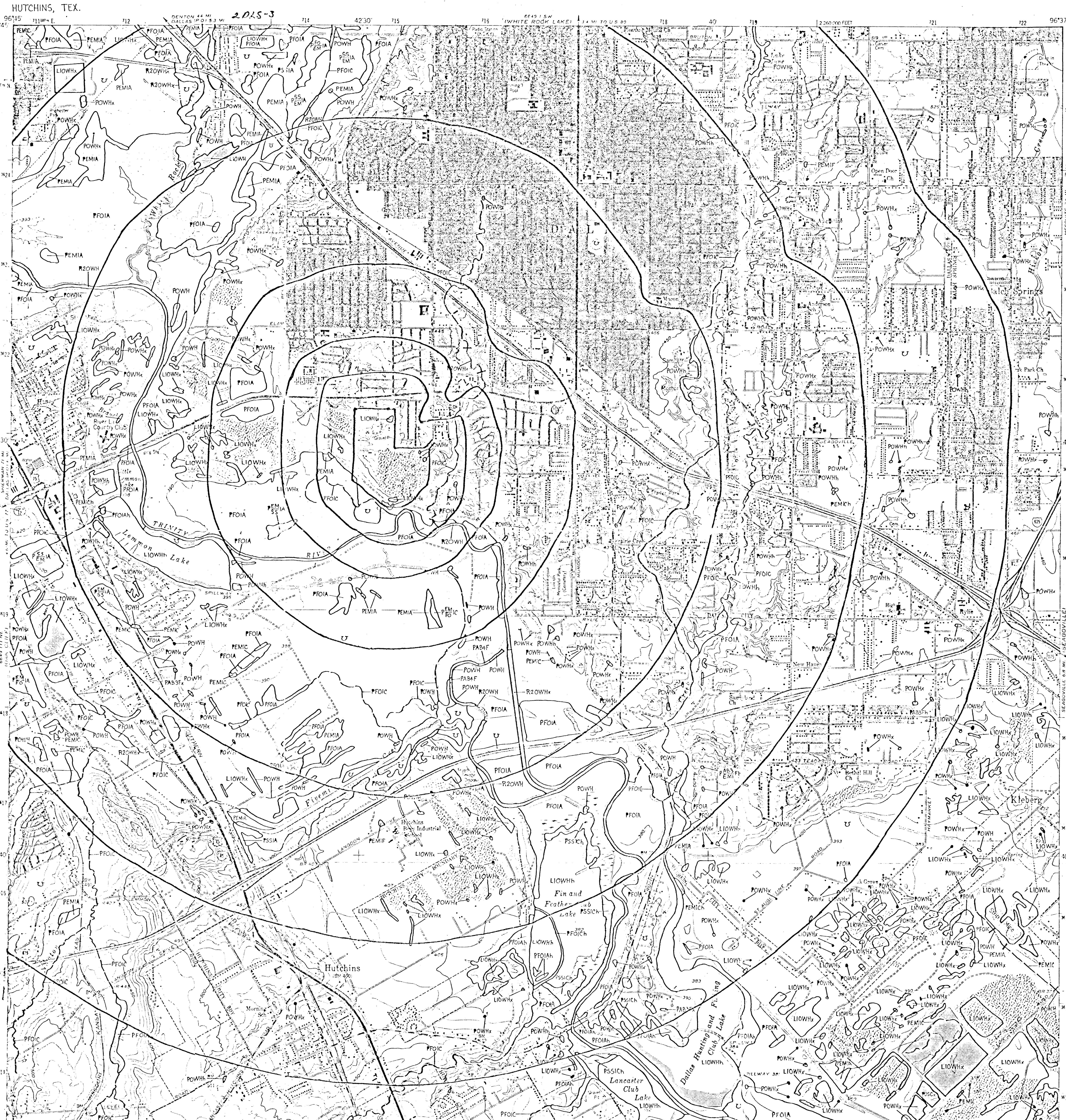
Most areas of this map unit are idle and are covered with thick stands of johnsongrass. A few areas are used as building sites.

Permeability is slow to very slow, and the available water capacity is high. Runoff is medium.

Reference 9

NATIONAL WETLANDS INVENTORY
UNITED STATES DEPARTMENT OF THE INTERIOR

HUTCHINS, TEX.



DALLAS NE
DALLAS

HUTCHINS, TEX.

SCALE 1:24 000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

1 acre 10 acres 20 acres

ACREAGE GUIDE

Other information including a narrative report concerning the wetland resources depicted on this document may be available. For information, contact:

Regional Director (ARDE) Region II
U.S. Fish and Wildlife Service
P.O. Box 1306
Albuquerque, New Mexico 87103

SPECIAL NOTE

This document was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with **Classification of Wetlands and Deepwater Habitats of the United States** (FWS/OBS - 79/31 December 1979). The aerial photographs typically reflect conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of the aerial photographs. Thus, a detailed on the ground and historical analysis of a single site may result in a revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included on this document.

Federal, State and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, State or local government or to establish the geographical scope of the regulatory programs of government agencies. **Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, State or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.**

SYMBOLOGY EXAMPLE

SYSTEM
SUBSYSTEM
CLASS
L2EM2F
SUBCLASS, WATER REGIME
UPLAND (NON-WETLAND)
R2OWH
(LINEAR DEEPWATER HABITAT)

U — Primarily represents upland areas, but may include unclassified wetlands such as man-modified areas, non photo-identifiable areas and/or unintentional omissions.

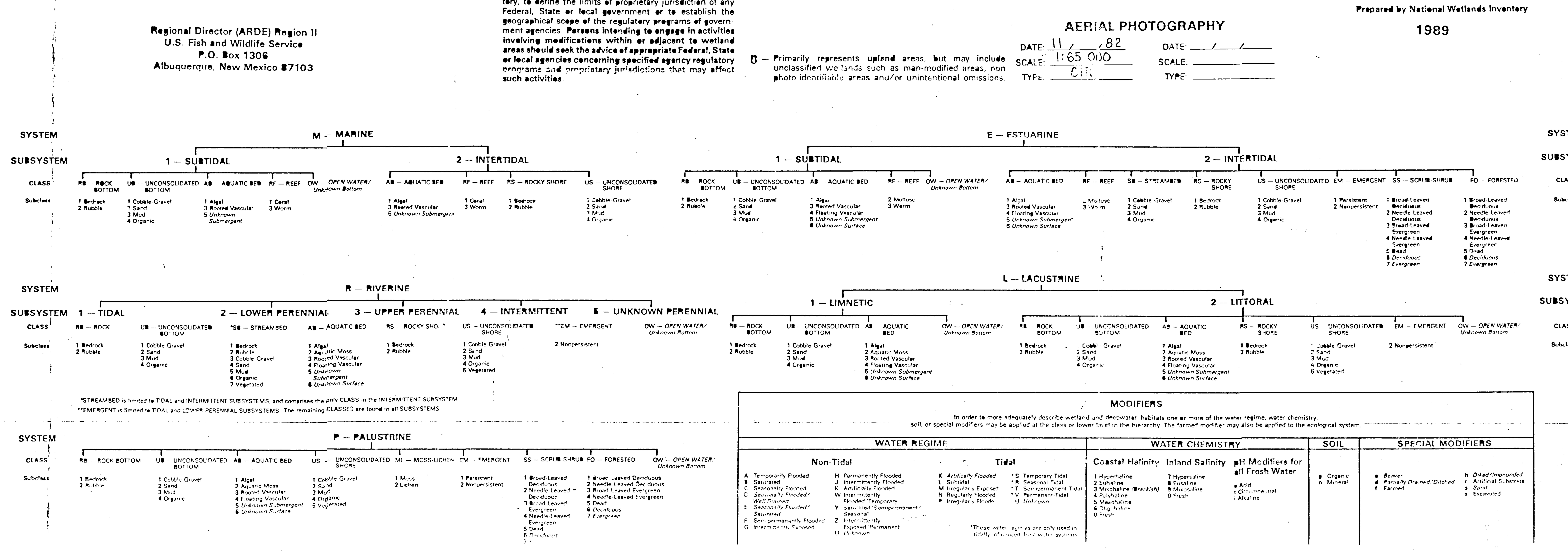
NOTES TO THE USER

- Wetlands which have been field examined are indicated on the map by an asterisk (*).
- Additions or corrections to the wetlands information displayed on this map are solicited. Please forward such information to the address indicated.
- Subsystems, Classes, Subclasses, and Water Regimes in *Italics* were developed specifically for NATIONAL WETLANDS INVENTORY mapping.
- Some areas designated as R4SB, R4SBW, OR R4SBJ (INTERMITTENT STREAMS) may not meet the definition of wetland.
- This map uses the class Unconsolidated Shore (US). On earlier NWI maps that class was designated Beach/Bar (BB), or Flat (FL). Subclasses remain the same in both versions.

AERIAL PHOTOGRAPHY

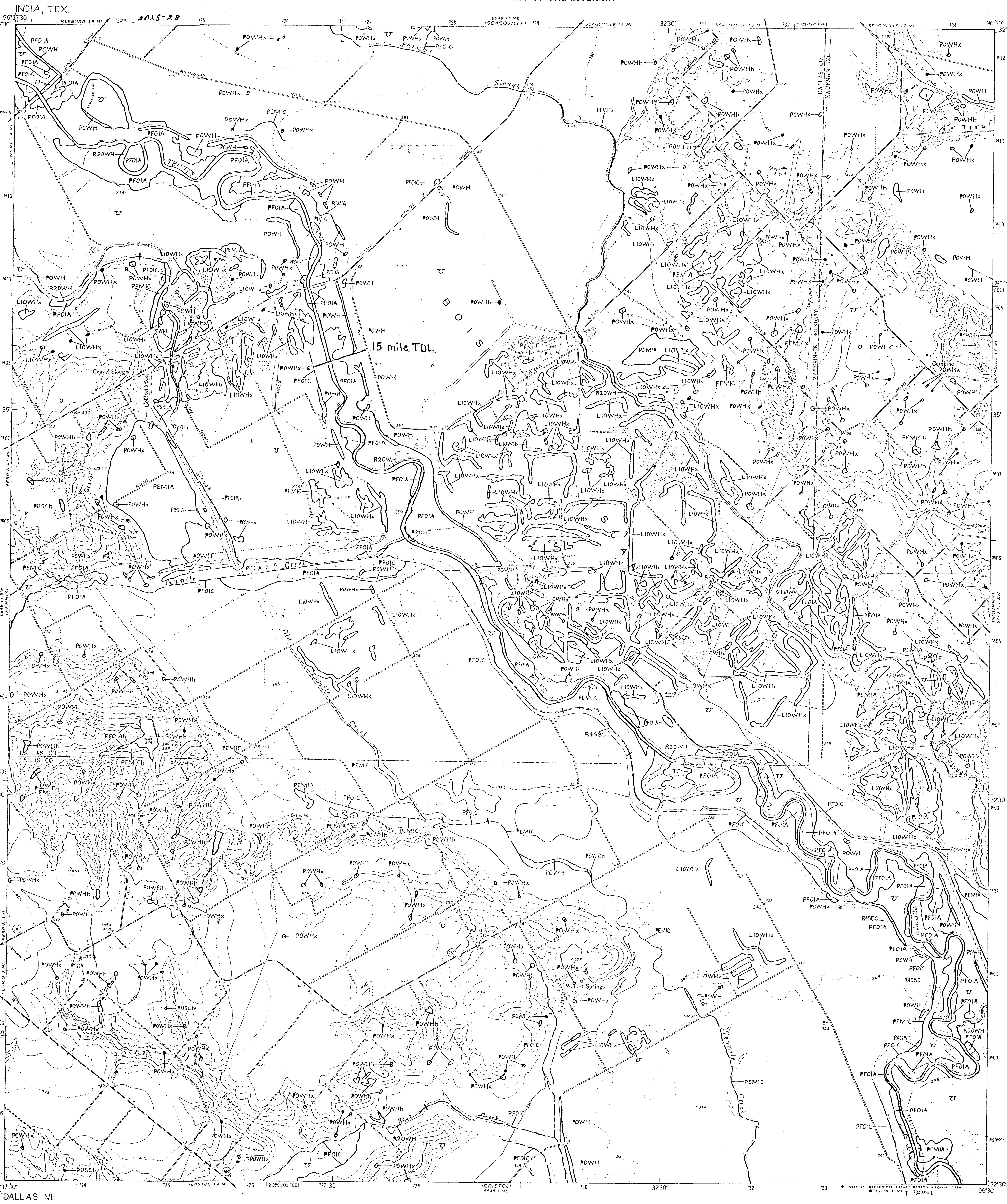
DATE: 11 / 82 DATE: / /
SCALE: 1:65 000 SCALE:
TYPE: CIR TYPE:

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Prepared by National Wetlands Inventory
1989



NATIONAL WETLANDS INVENTORY
UNITED STATES DEPARTMENT OF THE INTERIOR

INDIA, TEX.



DALLAS NE

DALLAS

INDIA, TEX.

SCALE 1:24 000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0.5 0 1 KILOMETER

1 acre — 10 acres — 20 acres

ACREAGE GUIDE

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SUBCLASS, WATER REGIME
UPLAND (NON-WETLAND)
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(LINEAR DEEPWATER HABITAT)

Ʊ — Primarily represents **upland** areas, but may include unclassified wetlands such as man-modified areas, non photo-identifiable areas and/or unintentional omissions.

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AERIAL PHOTOGRAPHY

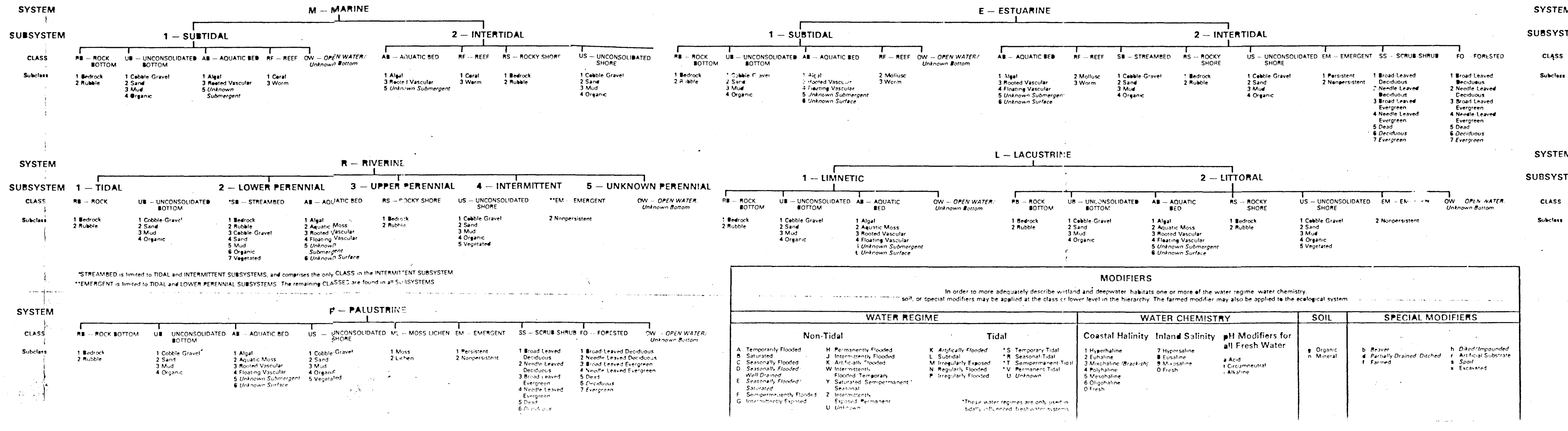
DATE	11 / 82	DATE	/ /
SCALE	1:65 000	SCALE	
TYPE	CIR	TYPE	

U.S. DEPARTMENT OF THE INTERIOR — MARCH 3, 1849

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Prepared by National Wetlands Inventory

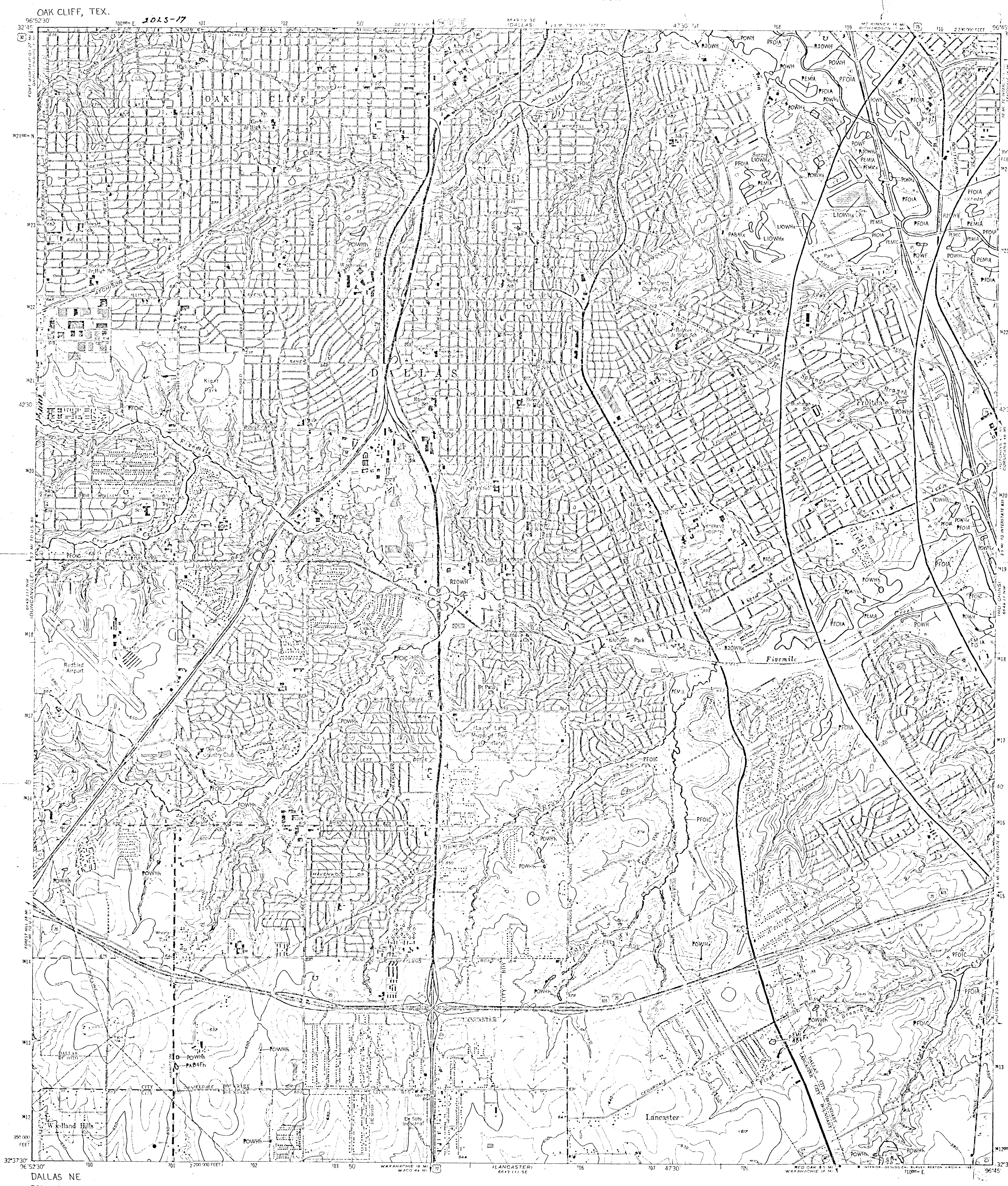
1989



NATIONAL WETLANDS INVENTORY

UNITED STATES DEPARTMENT OF THE INTERIOR

OAK CLIFF, TEX. 2025-17



DALLAS NE
DALLAS

OAK CLIFF, TEX.

SCALE 1:24 000

1 acre — 10 acres — 20 acres

ACREAGE GUIDE

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Regional Director (ARDE) Region II
U.S. Fish and Wildlife Service
P.O. Box 1306
Albuquerque, New Mexico 87103

SPECIAL NOTE

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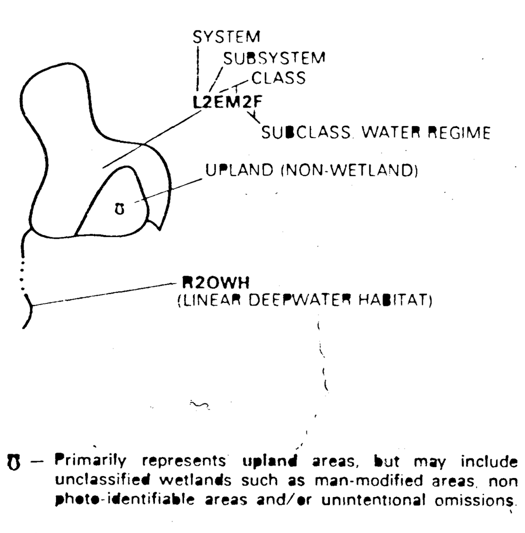
SYMBOLOGY EXAMPLE



℧ — Primarily represents **upland** areas, but may include unclassified wetlands such as man-modified areas, non photo-identifiable areas and/or unintentional omissions.

NOTES TO THE USER

- Wetlands which have been field examined are indicated on the map by an asterisk (*).
- Additions or corrections to the wetlands information displayed on this map are solicited. Please forward such information to the address indicated.
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- Some areas designated as R4SB, R4SBW, OR R4SBJ (INTERMITTENT STREAMS) may not meet the definition of wetland.
- This map uses the class Unconsolidated Shore (US). On earlier NWI maps that class was designated Beach/Bar (BB), or Flat (FL). Subclasses remain the same in both versions.

AERIAL PHOTOGRAPHY

DATE: 11 / / 82 — DATE: / /
SCALE: 1:65000 — SCALE:
TYPE: CIR — TYPE:

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Prepared by National Wetlands Inventory
1989

M — MARINE

SUBSYSTEM: 1 — SUBTIDAL
- CLASS RB — ROCK BOTTOM. Subclass: 1 Bedrock; 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic
- AB — AQUATIC BED: 1 Algal; 3 Rooted Vascular; 5 *Unknown Submergent*
- RF — REEF: 1 Coral; 3 Worm
- OW — *OPEN WATER/Unknown Bottom*

SUBSYSTEM: 2 — INTERTIDAL
- AB — AQUATIC BED: 1 Algal; 3 Rooted Vascular; 5 *Unknown Submergent*
- RF — REEF: 1 Coral; 3 Worm
- RS — ROCKY SHORE: 1 Bedrock; 2 Rubble
- US — UNCONSOLIDATED SHORE: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic

E — ESTUARINE

SUBSYSTEM: 1 — SUBTIDAL
- RB — ROCK BOTTOM: 1 Bedrock; 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble Gravel; 2 Sand; 3 Mud; 4 Organic
- AB — AQUATIC BED: 1 Algal; 3 Rooted Vascular; 4 Floating Vascular; 5 *Unknown Submergent*; 6 *Unknown Surface*
- RF — REEF: 2 Mollusc; 3 Worm
- OW — *OPEN WATER/Unknown Bottom*

SUBSYSTEM: 2 — INTERTIDAL
- AB — AQUATIC BED: 1 Algal; 3 Rooted Vascular; 4 Floating Vascular; 5 *Unknown Submergent*; 6 *Unknown Surface*
- RF — REEF: 2 Mollusc; 3 Worm
- SB — STREAMBED: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic
- RS — ROCKY SHORE: 1 Bedrock; 2 Rubble
- US — UNCONSOLIDATED SHORE: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic
- EM — EMERGENT: 1 Persistent; 2 Nonpersistent
- SS — SCRUB-SHRUB: 1 Broad-Leaved Deciduous; 2 Needle-Leaved Deciduous; 3 Broad-Leaved Evergreen; 4 Needle-Leaved Evergreen; 5 Dead; 6 *Deciduous*; 7 *Evergreen*
- FO — FORESTED: 1 Broad-Leaved Deciduous; 2 Needle-Leaved Deciduous; 3 Broad-Leaved Evergreen; 4 Needle-Leaved Evergreen; 5 Dead; 6 *Deciduous*; 7 *Evergreen*

R — RIVERINE

SUBSYSTEM: 1 — TIDAL; 2 — LOWER PERENNIAL; 3 — UPPER PERENNIAL; 4 — INTERMITTENT; 5 — UNKNOWN PERENNIAL
- RB — ROCK BOTTOM: 1 Bedrock; 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic
- *SB — STREAMBED: 1 Bedrock; 2 Rubble; 3 Cobble-Gravel; 4 Sand; 5 Mud; 6 Organic; 7 Vegetated
- AB — AQUATIC BED: 1 Algal; 2 Aquatic Moss; 3 Rooted Vascular; 4 Floating Vascular; 5 *Unknown Submergent*; 6 *Unknown Surface*
- RS — ROCKY SHORE: 1 Bedrock; 2 Rubble
- US — UNCONSOLIDATED SHORE: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic; 5 Vegetated
- **EM — EMERGENT: 2 Nonpersistent
- OW — *OPEN WATER/Unknown Bottom*

*STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM.
**EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS. The remaining CLASSES are found in all SUBSYSTEMS.

L — LACUSTRINE

SUBSYSTEM: 1 — LIMNETIC
- RB — ROCK BOTTOM: 1 Bedrock; 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic
- AB — AQUATIC BED: 1 Algal; 2 Aquatic Moss; 3 Rooted Vascular; 4 Floating Vascular; 5 *Unknown Submergent*; 6 *Unknown Surface*
- OW — *OPEN WATER/Unknown Bottom*

SUBSYSTEM: 2 — LITTORAL
- RB — ROCK BOTTOM: 1 Bedrock; 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic
- AB — AQUATIC BED: 1 Algal; 2 Aquatic Moss; 3 Rooted Vascular; 4 Floating Vascular; 5 *Unknown Submergent*; 6 *Unknown Surface*
- RS — ROCKY SHORE: 1 Bedrock; 2 Rubble
- US — UNCONSOLIDATED SHORE: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic; 5 Vegetated
- EM — EMERGENT: 2 Nonpersistent
- OW — *OPEN WATER/Unknown Bottom*

P — PALUSTRINE

- RB — ROCK BOTTOM: 1 Bedrock; 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic
- AB — AQUATIC BED: 1 Algal; 2 Aquatic Moss; 3 Rooted Vascular; 4 Floating Vascular; 5 *Unknown Submergent*; 6 *Unknown Surface*
- US — UNCONSOLIDATED SHORE: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic; 5 Vegetated
- ML — MOSS-LICHEN: 1 Moss; 2 Lichen
- EM — EMERGENT: 1 Persistent; 2 Nonpersistent
- SS — SCRUB-SHRUB: 1 Broad-Leaved Deciduous; 2 Needle-Leaved Deciduous; 3 Broad-Leaved Evergreen; 4 Needle-Leaved Evergreen; 5 Dead; 6 [illegible]
- FO — FORESTED: 1 Broad-Leaved Deciduous; 2 Needle-Leaved Deciduous; 3 Broad-Leaved Evergreen; 4 Needle-Leaved Evergreen; 5 Dead; 6 *Deciduous*; 7 *Evergreen*
- OW — *OPEN WATER/Unknown Bottom*

MODIFIERS

In order to more adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME

Non-Tidal:
- A Temporarily Flooded
- B Saturated
- C Seasonally Flooded
- D *Seasonally Flooded/Well Drained*
- E *Seasonally Flooded/Saturated*
- F Semipermanently Flooded
- G Intermittently Exposed
- H Permanently Flooded
- J Intermittently Flooded
- K Artificially Flooded
- W Intermittently Flooded/Temporary
- Y Saturated/Semipermanent/Seasonal
- Z Intermittently Exposed/Permanent
- U *Unknown*

Tidal:
- K *Artificially Flooded*
- L Subtidal
- M Irregularly Exposed
- N Regularly Flooded
- P Irregularly Flooded
- *S Temporary-Tidal
- *R Seasonal-Tidal
- *T Semipermanent-Tidal
- *V Permanent-Tidal
- U *Unknown*

*These water regimes are only used in tidally influenced, freshwater systems.

WATER CHEMISTRY

Coastal Halinity: 1 Hyperhaline; 2 Euhaline; 3 Mixohaline (Brackish); 4 Polyhaline; 5 Mesohaline; 6 Oligohaline; 0 Fresh

Inland Salinity: 7 Hypersaline; 8 Eusaline; 9 Mixosaline; 0 Fresh

pH Modifiers for all Fresh Water: a Acid; t Circumneutral; i Alkaline

SOIL

g Organic; n Mineral

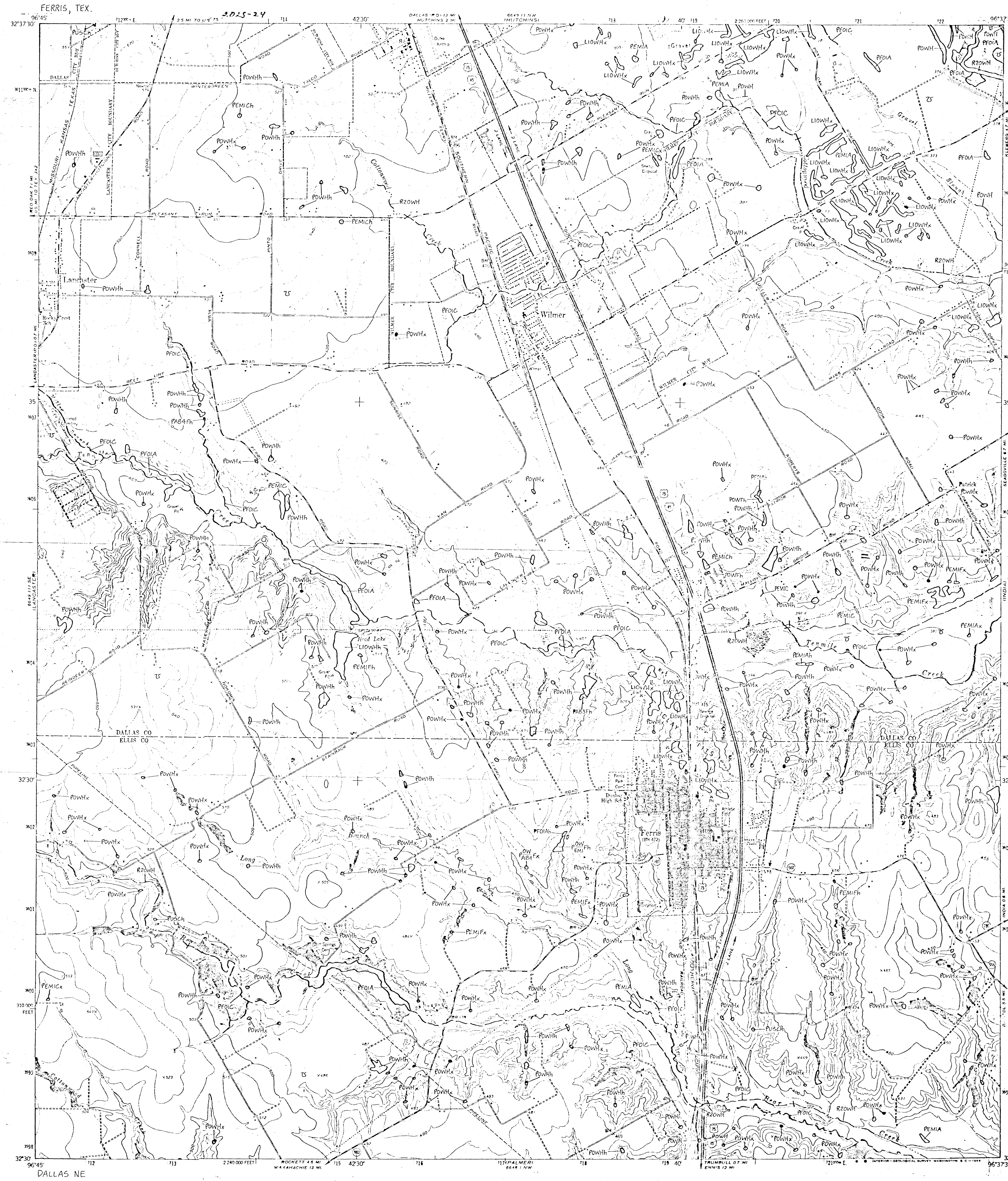
SPECIAL MODIFIERS

- b *Beaver*
- d *Partially Drained/Ditched*
- f Farmed
- h *Diked/Impounded*
- r Artificial Substrate
- s *Spoil*
- x Excavated

NATIONAL WETLANDS INVENTORY

UNITED STATES DEPARTMENT OF THE INTERIOR

FERRIS, TEX.



DALLAS NE
DALLAS

FERRIS, TEX.

SCALE 1:24 000

1 acre — 10 acres — 20 acres
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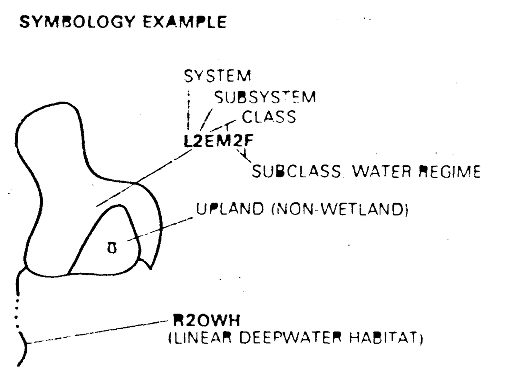

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SCALE: 1:65 000 — SCALE:
TYPE: CIR — TYPE:

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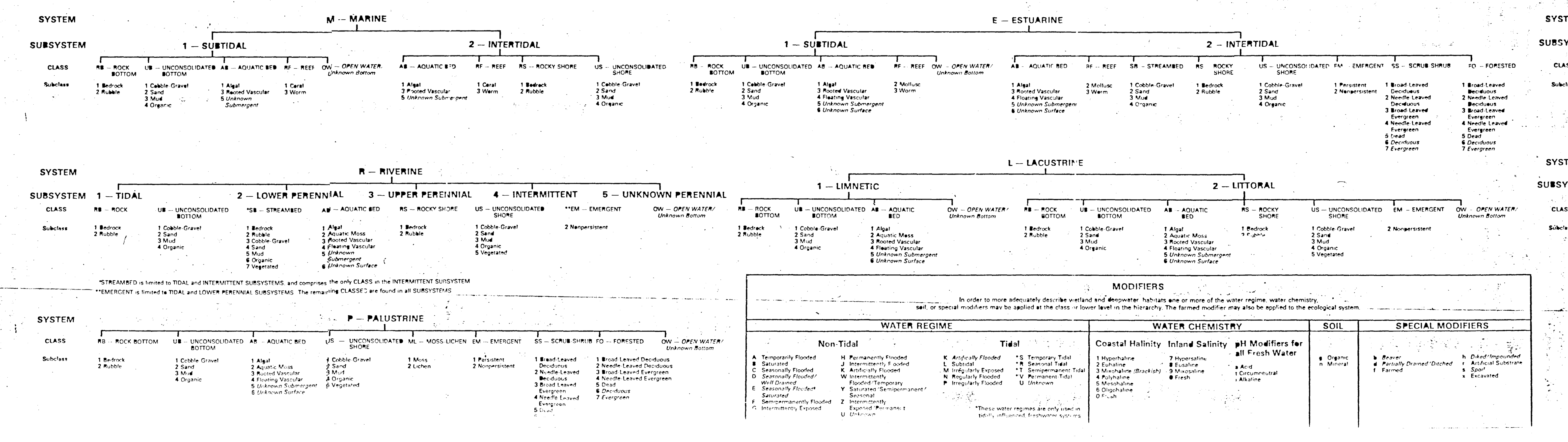
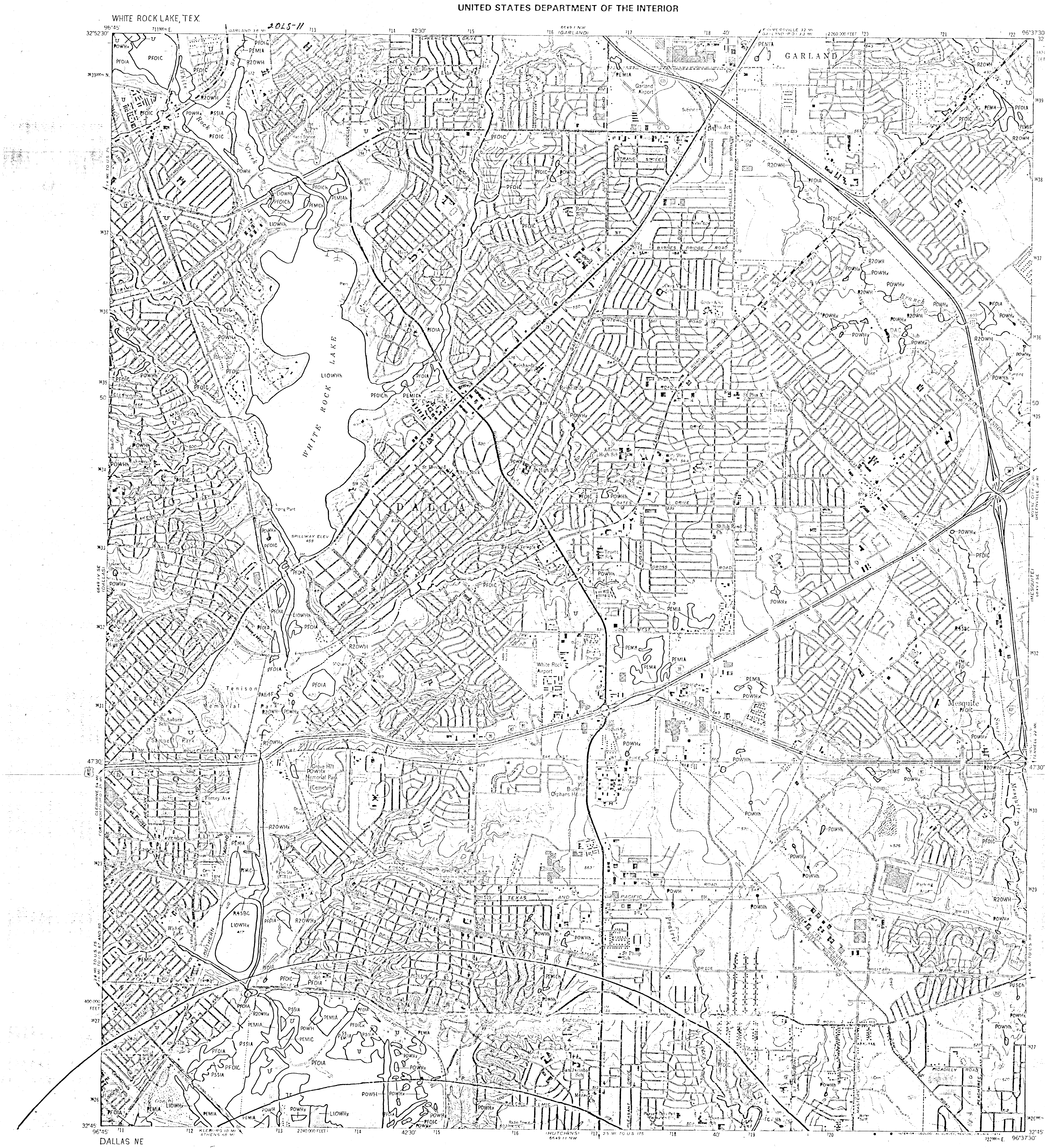


NATIONAL WETLANDS INVENTORY

UNITED STATES DEPARTMENT OF THE INTERIOR

WHITE ROCK LAKE, TEX.



DALLAS NE
DALLAS

WHITE ROCK LAKE, TEX.

SCALE 1:24 000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

1 acre 10 acres 20 acres

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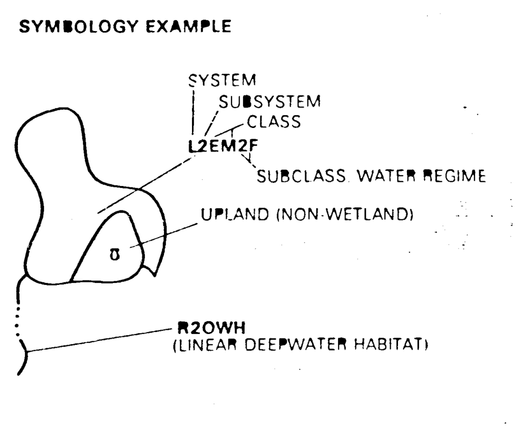

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TYPE: CIR	TYPE:

U.S. DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

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- AB — AQUATIC BED. Subclass: 1 Algal, 3 Rooted Vascular, 5 *Unknown Submergent*
- RF — REEF. Subclass: 1 Coral, 3 Worm
- OW — *OPEN WATER/ Unknown Bottom*

SUBSYSTEM: 2 — INTERTIDAL

- AB — AQUATIC BED. Subclass: 1 Algal, 3 Rooted Vascular, 5 *Unknown Submergent*
- RF — REEF. Subclass: 1 Coral, 3 Worm
- RS — ROCKY SHORE. Subclass: 1 Bedrock, 2 Rubble
- US — UNCONSOLIDATED SHORE. Subclass: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic

E — ESTUARINE

SUBSYSTEM: 1 — SUBTIDAL

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- AB — AQUATIC BED. Subclass: 1 Algal, 3 Rooted Vascular, 4 Floating Vascular, 5 *Unknown Submergent*, 6 *Unknown Surface*
- RF — REEF. Subclass: 2 Mollusc, 3 Worm
- OW — *OPEN WATER/ Unknown Bottom*

SUBSYSTEM: 2 — INTERTIDAL

- AB — AQUATIC BED. Subclass: 1 Algal, 3 Rooted Vascular, 4 Floating Vascular, 5 *Unknown Submergent*, 6 *Unknown Surface*
- RF — REEF. Subclass: 2 Mollusc, 3 Worm
- SB — STREAMBED. Subclass: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
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- FO — FORESTED. Subclass: 1 Broad-Leaved Deciduous, 2 Needle-Leaved Deciduous, 3 Broad-Leaved Evergreen, 4 Needle-Leaved Evergreen, 5 Dead, 6 *Deciduous*, 7 *Evergreen*

R — RIVERINE

SUBSYSTEM: 1 — TIDAL; 2 — LOWER PERENNIAL; 3 — UPPER PERENNIAL; 4 — INTERMITTENT; 5 — UNKNOWN PERENNIAL

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- UB — UNCONSOLIDATED BOTTOM. Subclass: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
- *SB — STREAMBED. Subclass: 1 Bedrock, 2 Rubble, 3 Cobble-Gravel, 4 Sand, 5 Mud, 6 Organic, 7 Vegetated
- AB — AQUATIC BED. Subclass: 1 Algal, 2 Aquatic Moss, 3 Rooted Vascular, 4 Floating Vascular, 5 *Unknown Submergent*, 6 *Unknown Surface*
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- US — UNCONSOLIDATED SHORE. Subclass: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic, 5 Vegetated
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SUBSYSTEM: 2 — LITTORAL

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- RS — ROCKY SHORE. Subclass: 1 Bedrock, 2 Rubble
- US — UNCONSOLIDATED SHORE. Subclass: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic, 5 Vegetated
- EM — EMERGENT. Subclass: 2 Nonpersistent
- OW — *OPEN WATER/ Unknown Bottom*

P — PALUSTRINE

- RB — ROCK BOTTOM. Subclass: 1 Bedrock, 2 Rubble
- UB — UNCONSOLIDATED BOTTOM. Subclass: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
- AB — AQUATIC BED. Subclass: 1 Algal, 2 Aquatic Moss, 3 Rooted Vascular, 4 Floating Vascular, 5 *Unknown Submergent*, 6 *Unknown Surface*
- US — UNCONSOLIDATED SHORE. Subclass: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic, 5 Vegetated
- ML — MOSS-LICHEN. Subclass: 1 Moss, 2 Lichen
- EM — EMERGENT. Subclass: 1 Persistent, 2 Nonpersistent
- SS — SCRUB-SHRUB. Subclass: 1 Broad-Leaved Deciduous, 2 Needle-Leaved Deciduous, 3 Broad-Leaved Evergreen, 4 Needle-Leaved Evergreen, 5 Dead, 6 *Deciduous*, 7 *Evergreen*
- FO — FORESTED. Subclass: 1 Broad-Leaved Deciduous, 2 Needle-Leaved Deciduous, 3 Broad-Leaved Evergreen, 4 Needle-Leaved Evergreen, 5 Dead, 6 *Deciduous*, 7 *Evergreen*
- OW — *OPEN WATER/ Unknown Bottom*

MODIFIERS

In order to more adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME

Non-Tidal: A Temporarily Flooded; B Saturated; C Seasonally Flooded; D *Seasonally Flooded/ Well Drained*; E *Seasonally Flooded/ Saturated*; F Semipermanently Flooded; G Intermittently Exposed; H Permanently Flooded; J Intermittently Flooded; K Artificially Flooded; W Intermittently Flooded/Temporary; Y Saturated/Semipermanent/ Seasonal; Z Intermittently Exposed/Permanent; U *Unknown*

Tidal: K *Artificially Flooded*; L Subtidal; M Irregularly Exposed; N Regularly Flooded; P Irregularly Flooded; *S Temporary-Tidal; *R Seasonal-Tidal; *T Semipermanent-Tidal; *V Permanent-Tidal; U *Unknown*

*These water regimes are only used in tidally influenced, freshwater systems.

WATER CHEMISTRY

Coastal Halinity: 1 Hyperhaline, 2 Euhaline, 3 Mixohaline *(Brackish)*, 4 Polyhaline, 5 Mesohaline, 6 Oligohaline, 0 Fresh

Inland Salinity: 7 Hypersaline, 8 Eusaline, 9 Mixosaline, 0 Fresh

pH Modifiers for all Fresh Water: a Acid, t Circumneutral, i Alkaline

SOIL

g Organic, n Mineral

SPECIAL MODIFIERS

b *Beaver*; d *Partially Drained/Ditched*; f Farmed; h *Diked/Impounded*; r Artificial Substrate; s *Spoil*; x Excavated

Reference 10

WELCOME!
MABLE/Geocorr V2.5
Geographic Correspondence Engine

[OSEDA Mirror] | [SEDAC Mirror] | [CENSUS Mirror]

This application allows you to access the MABLE geographic data base and to generate custom "correlation lists" as reports and/or files.

Help | **Examples** | **Usage Notes**
Output Samples | **New in V2** | **Articles** | **Future**

This form has 5 main sections. Only the first 2 are required.
Input | **Output** | **Point & Distance** | **Bounding Box** | **Geographic Filter**

Note: In most of the select-list boxes below you can make multiple selections. Some browsers require that you hold down the ctrl key while clicking before it will recognize multiple selections.

Input Options

Select state(s) to process. (Limit of 5 states on weekdays, 7 AM - 6 PM) (Required Option)

ALABAMA
ALASKA
ARIZONA
ARKANSAS
CALIFORNIA
COLORADO
CONNECTICUT
DELAWARE

For background information and help with any of the geographic codes used in the MABLE database (source/target geocodes) consult the file:
MAGGOT
(Master Area Geographic Glossary Of Terms)

Select "SOURCE" Geocode(s)	Select "TARGET" Geocode(s)

Geocorr Population Ring Totals
Latitude 32.708239
Longitude 96.70169

COUNTY	TRACT	BG	RING	POP	AFACT
48113	116.01	3	0.25	270	0.229
			Ring Total	270	
48113	93.04	3	0.5	205	0.272
48113	93.04	4	0.5	160	0.106
48113	116.01	2	0.5	259	0.268
48113	116.01	3	0.5	911	0.771
			Ring Total	1535	
48113	93.03	1	1	265	0.17
48113	93.03	3	1	338	0.236
48113	93.04	1	1	827	0.826
48113	93.04	2	1	1844	1
48113	93.04	3	1	548	0.728
48113	93.04	4	1	1104	0.73
48113	116.01	1	1	717	0.642
48113	116.01	2	1	707	0.732
48113	116.01	4	1	117	0.112
			Ring Total	6467	
48113	91.02	3	2	65	0.072
48113	91.02	4	2	1296	0.849
48113	91.02	5	2	408	0.408
48113	91.02	6	2	272	0.336
48113	92.02	2	2	425	0.388
48113	92.02	3	2	581	1
48113	92.02	4	2	213	0.203
48113	93.01	1	2	517	1
48113	93.01	2	2	1028	1
48113	93.01	3	2	1114	1
48113	93.01	4	2	535	1
48113	93.03	1	2	1295	0.83
48113	93.03	2	2	1327	1
48113	93.03	3	2	1092	0.764
48113	93.04	1	2	174	0.174
48113	93.04	4	2	248	0.164
48113	114.02	1	2	14	0.015
48113	116.01	1	2	400	0.358
48113	116.01	4	2	929	0.888
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48113	116.02	2	2	344	1
48113	116.02	3	2	235	0.232
48113	117	5	2	621	0.994
			Ring Total	13868	

COUNTY	TRACT	BG	RING	POP	AFACT
48113	91.01	2	3	138	0.202
48113	91.01	4	3	111	0.082
48113	91.02	1	3	1096	1
48113	91.02	2	3	1515	1
48113	91.02	3	3	835	0.928
48113	91.02	4	3	230	0.151
48113	91.02	5	3	591	0.592
48113	91.02	6	3	537	0.664
48113	91.02	7	3	987	1
48113	92.01	1	3	70	0.06
48113	92.01	2	3	565	0.86
48113	92.01	3	3	859	1
48113	92.01	4	3	704	0.506
48113	92.01	5	3	763	1
48113	92.02	1	3	1672	1
48113	92.02	2	3	670	0.612
48113	92.02	4	3	836	0.797
48113	114.02	1	3	900	0.981
48113	115	1	3	74	0.063
48113	116.02	3	3	779	0.768
48113	116.02	4	3	70	0.107
48113	117	3	3	574	0.488
48113	117	4	3	1631	1
48113	117	5	3	4	0.006
48113	117	6	3	1330	0.92
48113	117	8	3	170	0.425
48113	118	3	3	40	0.021
48113	118	4	3	1002	0.951
48113	119	3	3	102	0.068
48113	169.02	1	3	76	0.157
48113	171	3	3	8	0.016
			Ring Total	18939	
48113	39.02	2	4	184	1
48113	39.02	3	4	475	1
48113	84	5	4	313	1
48113	84	6	4	438	1
48113	85	3	4	250	1
48113	85	4	4	2	1
48113	86.02	1	4	189	1
48113	86.02	2	4	1989	1
48113	87.01	1	4	569	1
48113	87.01	2	4	1200	1
48113	87.01	3	4	789	1
48113	87.01	4	4	1068	1
48113	87.01	5	4	1487	1
48113	90.02	1	4	794	1
48113	90.02	2	4	1041	1

COUNTY	TRACT	BG	RING	POP	AFACT
48113	90.02	3	4	1353	1
48113	90.02	4	4	953	1
48113	91.01	1	4	918	1
48113	91.01	2	4	546	0.798
48113	91.01	3	4	1031	1
48113	91.01	4	4	1242	0.918
48113	91.01	5	4	1072	1
48113	92.01	1	4	1090	0.94
48113	92.01	2	4	92	0.14
48113	92.01	4	4	687	0.494
48113	114.01	1	4	679	1
48113	114.02	1	4	3	0.003
48113	115	1	4	1102	0.937
48113	115	4	4	1755	1
48113	116.02	4	4	585	0.893
48113	116.02	5	4	692	1
48113	117	1	4	1049	1
48113	117	2	4	1516	1
48113	117	3	4	603	0.512
48113	117	6	4	115	0.08
48113	117	7	4	457	1
48113	117	8	4	230	0.575
48113	118	1	4	70	1
48113	118	2	4	2634	1
48113	118	3	4	1884	0.979
48113	118	4	4	52	0.049
48113	119	1	4	1035	1
48113	119	2	4	1445	1
48113	119	3	4	1394	0.932
48113	119	4	4	664	1
48113	120	1	4	209	1
48113	120	2	4	420	1
48113	169.01	1	4	1088	1
48113	169.01	2	4	1289	1
48113	169.02	1	4	408	0.843
48113	171	3	4	485	0.984
			Ring Total	41635	

Four-Mile Total 82714

Reference 11

United States Environmental Protection Agency
Washington, D.C. 20460

EPA NPDES Compliance Inspection Report

Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 N 2 5	3 NO PERMIT 11	12 961212 17	18 W	19 R	20 2

21 Multi-sector Storm Water 66

Facility Evaluation Rating		BI	QA	Reserved	
67 69	70 1	71	72	73 74	75 80

Section B: Facility Data

Name and Location of Facility Inspected	Entry Time	Permit Effective Date
Nethery Recycling Facility 500 Deepwood Street Dallas, TX 75217	2:15 pm Exit Time/Date 4:00 pm, 12/12/96	Permit Expiration Date

Name(s) of On-Site Representative(s)	Title(s)	Phone No(s)
Herman Gibbons Harlee Jimerson	Owner/Facility Manager Part-time Mechanic	(214) 371-0863

Name, Address of Responsible Official	Title	Contacted
Herman Gibbons or Herman Nethery 915 Oak Park Drive Dallas, Texas 75232	Owners Phone No. (214) 222-2350	[X] Yes [ ] No

Section C: Areas Evaluated During Inspection
(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

U Permit	N Flow Measurement	U Stormwater	N CSO/SSO (Sewer Overflow)
U Records/Reports	N Self-Monitoring Program	N Sludge Handling/Disposal	U Pollution Prevention
U Facility Site Review	N Compliance Schedules	N Pretreatment	N Multimedia
N Effluent/Receiving Waters	N Laboratory	U Operations & Maintenance	Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

See attached report and Photolog.

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone	Date
Keith A. Smith	EPA/6EN-AS/(214) 665-8047	1/27/97
Robert H. Reeves, P.E.	EPA/6EN-AS/(214) 665-8364	
Nelson F. Smith, P.E.	EPA/6EN-WT/(214) 665-6466	
Signature of Reviewer	**Agency/Office**	**Date**
	EPA/6EN-AS/214-665-8376	1/28/97

Reference 12

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF

DALLAS, TEXAS

DALLAS, DENTON, COLLIN, ROCKWALL AND KAUFMAN COUNTIES

PANEL 180 OF 235

(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
480171 0180

MAP REVISED:
JULY 2, 1991

FEDERAL EMERGENCY MANAGEMENT AGENCY

Federal Emergency Management Agency

500-Year Flood
100-Year Flood
FLOODWAY
100-Year Flood
500-Year Flood
Approximate 100-Year Flood Boundary
Cross Section Line
Elevation Reference
River Mile

Boundaries of ... and interpolat... based on hyd... of the Federal ...

This map was ... tivities only; it ... community or ... Refer to the ... additional areas ...

Floodway widt... scale. Refer to ... shown at 1/20 ... For adjoining map...

For description of El...

Reference 13

DALLAS COUNTY

Michelle Brown
2PS

	Federal Status	State Status
***** BIRDS *****		
Arctic Peregrine Falcon (*Falco peregrinus tundrius*) - due to similar field characteristics, treat all Peregrine Falcons as federal listed Endangered; potential migrant	E/SA	T
Bald Eagle (*Haliaeetus leucocephalus*) - found primarily near seacoasts, rivers, and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	LT	T
Black-capped Vireo (*Vireo atricapillus*) - oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	LE	E
Henslow's Sparrow (*Ammodramus henslowii*) - wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking; likely to occur, but few records within this county		
Interior Least Tern (*Sterna antillarum athalassos*) - nests along sand and gravel bars within braided streams and rivers; also known to nest on man-made structures	LE	E
Migrant Loggerhead Shrike (*Lanius ludovicianus migrans*) - open and semi-open grassy areas with scattered trees and brush; breeding March-late August		
Western Burrowing Owl (*Athene cunicularia hypugaea*) - open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows		
Whooping Crane (*Grus americana*) - potential migrant	LE	E
Wood Stork (*Mycteria americana*) - forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960		T
*****INSECTS*****		
Black Lordithon Rove Beetle (Lordithon niger) - historically known from Texas		
***** MAMMALS *****		
Plains Spotted Skunk (*Spilogale putorius interrupta*) - catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie		
***** REPTILES *****		
Texas Garter Snake (*Thamnophis sirtalis annectens*) - wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August		

	Federal Status	State Status
Texas Horned Lizard (*Phrynosoma cornutum*) - open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
Timber/Canebrake Rattlesnake (*Crotalus horridus*) - swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland, limestone bluffs; sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto		T

***** VASCULAR PLANTS *****

	Federal Status	State Status
Warnock's coral root (*Hexalectris warnockii*) - leaf litter and humus in oak-juniper woodlands in mountain canyons in the Trans Pecos but at lower elevations to the east, often on narrow terraces along creekbeds		

LE, LT - Federally Listed Endangered/Threatened
PE, PT - Federally Proposed Endangered/Threatened
E/SA, T/SA - Federally Endangered/Threatened by Similarity of Appearance
C1 - Federal Candidate, Category 1; information supports proposing to list as endangered/threatened
DL ,PDL - Federally Delisted/Proposed Delisted
E, T - State Endangered/Threatened
"blank" - Rare, but with no regulatory listing status

Species appearing on these lists do not share the same probability of occurrence. Some species are migrants or wintering residents only, or may be historic or considered extirpated.

Reference 14

Eagle Results

Use of these geocoding results is subject to RESTRICTIONS

Original Address	Standard Address	Matched Address
500 Deepwood Street Dallas, TX 75217	500 DEEPWOOD ST DALLAS, TX 75217-5941	500 DEEPWOOD ST DALLAS, TX 75217

EZLocate returned a Block Face Match from the Etak Map Premium database.

Location (NAD-27)	Postal	Census
Decimal Degrees *Deg:Min:Sec* Lat: 32.70823932:42:29.660N Lon: -096.701686 96:42:6.070W	Carrier:C055 DPBC...: 00	FIPS County..: TX113 UAC..........: 1922 Pop. Density.: U MCD..........: Place........: TX1085 Tract........: TX113011601 BlockGroup...:TX1130116013

home/ demo/ comments/ more info/ Etak

Etak, Inc.
A Unit of the Sony Group
1605 Adams Drive
Menlo Park, CA 94025
Tel: 650.328.3825

Reference 15

ecology and environment, inc.

International Specialists in the Environment

Job Number S06-99-03-0001

Nethery Landfill

Dallas, Dallas County, TX.

080801SIXX

E & E Job Number KJ6104

Telephone Code Number 80808

Site Name Nethery Landfill

City/State Dallas, TX

TDD 506-99-03-0001

PAN 080801SIXX

SSID

Start/Finish Date 7/1/99/ 8/12/99

Book 01 of 01

E & E Emergency Response Center: (716) 684-8940
E & E Corporate Center: (716) 684-8060
MEDTOX Hotline: (501) 370-8263
E & E Safety Director (Home): (716) 655-1260

7/1/99 06-99-03-0001

0700 START Michelle Brown picks-up Blazer at E+E ~~Whar~~ MB Warehouse

~~0800~~ 0855 MB START members M. Brown and Kris Lloyd have safety meeting

Weather sunny, high in upper 90s °F.

- level D PPE

Meeting conducted at E+E Office

0915 M. Brown & K. Llyod pick-up, SAM Bill Rhotenberry and intern Latricia Fitzgerald at EPA bldg.

0945 M. Brown, K. Lloyd, Rhotenberry & Fitzgerald Arrive at site

1000 walking perimeter of landfill, approx. 20 ft high, primarily construction materials

Stagnant water in low-lying areas of fill. Possible sediment

— 7/1/99 Michelle Brown —

7/1/99 06-99-03-0001

SxS. From these areas to the ~~west~~ MB of fill.

— fenced ~~on~~ South the north side closest to the residences

11:00 drive to other entrance off Loop 12, walk down road, see what we think is the Trinity River

11:30 Return to vehicle, try to drive to another entrance to gain access to site

11:50 Find another road, entryway, on SE of site. Roadway blocked w/ concrete

12:00 Break for lunch

13:00 Decide that we will go back to site next week. Bill will call City of Dallas and get keys

— 7/1/99 Michelle Brown —

7/1/99 06-99-03-0001

to gates so we will not have to walk on lanfill area - too dangerous - Need to Find drainage pathways and PPE to Trinity on next trip.
13:30 Drop off B. Rhotenberry and L. Fitzgerld at EPA and STARTS M. Brown + K. Lloyd return to office.

7-1-99 Michelle Brown

7/8/99 06-99-03-0

~~0915~~
~~0930~~ START members Michelle Brown + Kris Lloyd conduct site safety meeting. Trip, slip, fall, biological, flora hazards. Weather - sunny, high ~ 98°F. Meetings conducted in vehicle at the end of Deepwood St.
0940 M. Brow + K. Lloyd mee SAM Bill Rhotenberry, intern Latricia Fitzgerld. TEPA members Jon Rineha + Jana Enders. at Loop 12 entrance. Begin to hike dirt road surrounding Fill. Discovered several vents to the south of Field. Could hear venting occuring + smell sulfur. Having trouble finding drainage pathways following what we think

- 7/8/99 Michelle Brown -

7/8/99 06-99-03-0001

is a creek to the south
of Fill and vents
Need ariel photographs
possibly a boat to
better locate Trinity.
12:00 Break for lunch
13:00 START members
M. Brown + K. Llyod
return to office
will order ariel
photos + meet w/
Bill to plan next
step.

7/8/99 Michelle Brown

7/15/99 06-99-03-0001

0855 STARTS Michelle Brown
+ Kris Llyod conduct safety
meeting at E+E office.
weather pt. cloudy, high ≈ 95°F
discussed hazards - slip,
trip, fall, bugs, poison ivy
0930 Meet SAM Bill
Rhotenberry at Longview/
Riverwood entrance
0945 Attempt to get
Blazer over dirt pile
to drive it down
road parallel to Trinity
- get stuck
1000 Call warehouse -
talk to START Brian
Mason about helping
us get the Blazer
out
1015 START M. Brown +
SAM B. Rhotenberry
walk dirt road to
Elam creek. Discuss
sampling along creek,
at pond of Jim Miller
- 7/15/99 Michelle Brown

7/15/99 OU-99-03-0001

and the outfall from the pond to the creek + from creek into Trinity.

1100 STARTS Brian Mason + Jay Donahee get Blazer.

1115 Back at vehicles, discuss sampling strategy. 3 samples at entry wetland, 1 at entry to Elam, 2-3 off Elam, one soil on edge of fill, one background for Elam, background for Trinity (poss one for wetland)
- all sediment -
~3 at outfall to west of Elam
- water samples?
Will walk to other outfall this afternoon

1200 Break for lunch

- 7/15/99 Michelle Brown

7/15/99 OU-99-03-000

1315 START M. Brown + SAM B. Rhetenberry return to site at Longacre entrance off Loop 12. START K. Lloyd returned to office

1400 Found horseshoe section of Trinity, stagnant water, slow flow, cannot find PPE into Trinity but found pathway to it. Sample at swamp area to south of fill + along pathway to Trinity (right after fork in dirt road heads north)

Sample stagnant water in trench at fill + follow pathway down as can get to Trinity

1450 ~~Return~~ F.M.B Drive to Jim Miller entrance

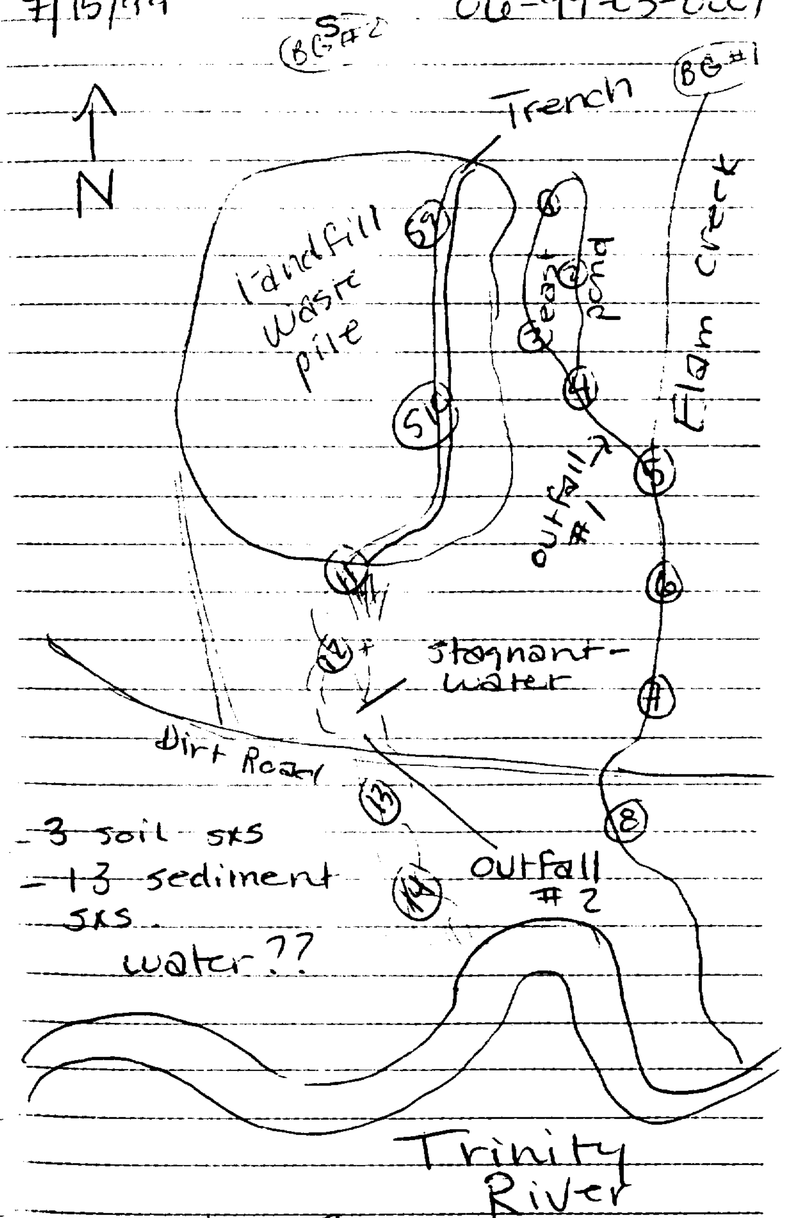
- 7/15/99 Michelle Brown

7/15/99 06-99-03-0001

to look @ pond to the left of the dirt road
Take approx. 3 sxs at the east pond & at the ~~outf~~alling pathway &
PPE to Elam.
– see sketch on pg 11 –
1515 M. Brown & B. Rhotenberry depart site & head towards office

7/15/99 Michelle Brown

7/15/99 06-99-03-0001



– 3 soil sxs
– 13 sediment sxs
water??

– 7/15/99 Michelle Brown

)/99 06-99-03-0001
) START members
helle Brown, Maggie Carson
e Mitchell & Jody Shires
eet at E+E warehouse.
ad - sampling equipment
e van. Conduct
ily safety meeting
ather - clear, high
)3° F. Hazards -
p, trip, fall. Agenda -
d sampling points +
lect soil/sediment
nples. PPE - Level D
Arrive at Loop 12
trance. Cannot cut
air to fence. START'S
rson + Mitchell go to
rdware store to buy
w bolt cutters. START'S
own + Shires buy
e.
5 Cut lock + drive
to site from the N.E.
e John Deer "Gator"
proceed on road
Michelle Brown 8/10/99

8/10/99 06-99-03-0001
to the west of fill going
to the north.
0900 Search for east overflow
in Gator. Have to hike
to sx. locations from N.
10:00 Prepare to begin
sampling on S. overflow
- sediment sxs. - 5
toward Trinity
10:30 Begin sampling ~~SD11~~
~~+ SD12~~ MB 8/10 SD12 + SD13
10:50 Begin sampling SD14
+ SD11
11:00 Begin sampling SD15
11:10 Begin sampling SD11
12:00 - late entry - SXS.
SD12, SD11 sampled by
START members Shires +
Mitchell, SXS. SD13, SD14
+ SD15 sampled by
START member Carson.
SAM Bill Rhotenberry
arrived at site at 0900,
found START members
at 10:30
— Michelle Brown 8/10/99

99 06-99-03-0001

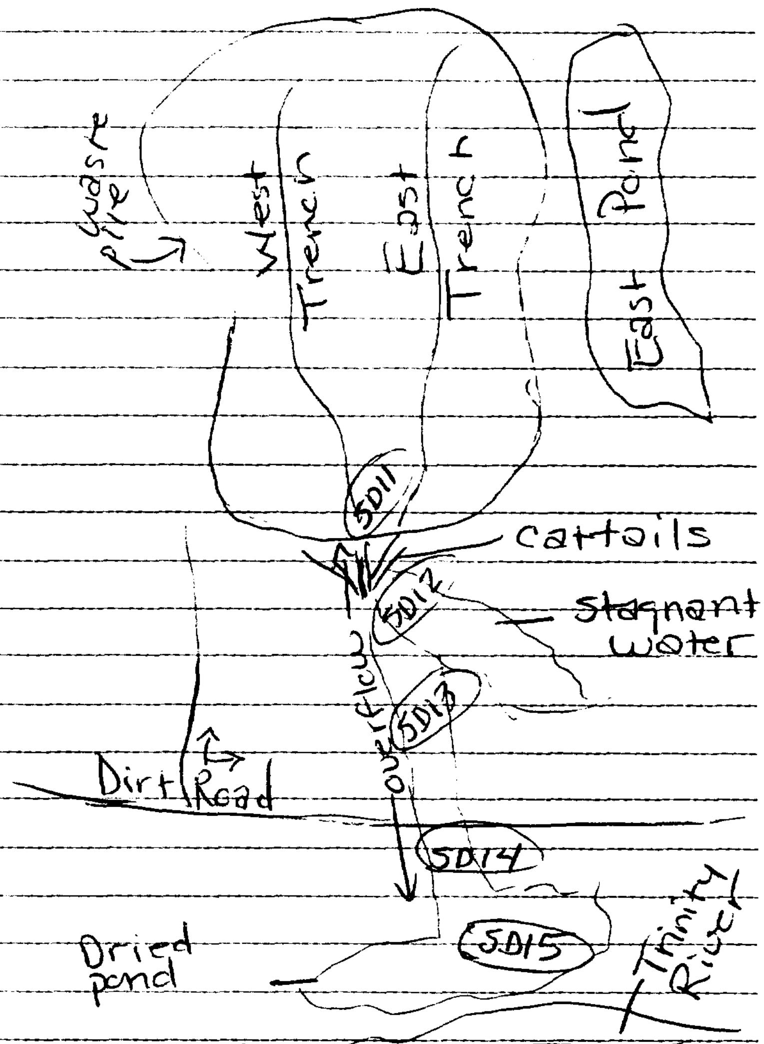
210 START members
.n, Carson, Mitchell
ires leave site w/
Rhotenberry
START Brown + SAM
enberry drive to find
con Elam creek at
12. Identified were
background sx. is to
taken.
START members
ive at E+E ware-
e. Begin labling
packaging samples
ected during the

- Late entry -
sampling locations
red flags placed at
w/ number of sx.
ten on them for
re reference.
START members leave
rehouse + go home
-10/99 Michelle Brown

15

8/10/99 06-99-03-0001

Sampling locations
For the day



- 8/10/99 Michelle Brown

/11/99 06-99-03-0001

00 START members
Michelle Brown, Maggie Carson,
Jody Shires, Mike Mitchell
meet at E+E Warehouse
conduct site safety
meeting. Weather - clear,
high ~ 105°F. Hazards-
te - stress, snakes, slip
trip, fall. Gator operation.
Agenda - collect soil/
sediment samples. PPE-
Level D
0700 START members
Brown, Carson, Shires +
Mitchell arrive at site
0715 START members
Brown + Carson go for
ice. Mitchell + Shires
set-up decon equipment
0740 Prepare sampling
equipment at site + load
in Gator to head towards
East Pond
0830 Mitchell begins
sampling SDØ5 w/ Shires
— 8/11/99 Michelle Brown

8/11/99 06-99-03-000

0850 Mitchell + Shires begin
sampling SDØ4 (the beginning
of the S. overflow)
0925 Brown + Shires begin
sampling SDØ3 at end
of pond - no photo taken
0955 Mitchell + Shires
begin sampling SDØ2
in the middle portion of
the pond.
1015 Mitchell + Shires begin
sampling SDØ1 at the
~~beg~~ MB Beginning of the
pond close to Jim Miller
entrance
1035 Mitchell + Shires
begin sampling SSØ1
~~next to west trench~~ MB 8/11
at NE side of landfill
upslope from east pond
1110 Brown begins sampling
SSØ2 from SW of waste
pile
1115 Shires begins sampling
SSØ3 - Duplicate of SSØ2.
— 8/11/99 Michelle Brown

99 06-99-03-0001

START members depart
e & head for warehouse
Arrive at E+E ware-
use & begin taging +
ackaging SXS for shipment
0-late entry - EPA
'RA employees arrived
- site approximately 8:45
observe START members
mpling (Walt Helmik sp?
Ellen Chang) They
part site approximately
- an hour later.
START members finish
ith sample packaging
ead home.

8/11/99 Michelle Green

7/1/99 06-99-03-0001[19]

Photo Log

35mm Pentax #696714 photographer witness

Roll	Frame	Date/Time	Direction/Location	
1	01	7/1/99 0950	~~VS~~ Front — entry sign	KL/MB
1	02	~~8~~ 7/1/99 0955	SW	Panoramic veiw of landfill
1	03		~~SW~~	
1	04		~~SW~~	
1	05		N~~E~~E	

1 06 7/1, 10:00 SW gully at — perimeter of landfill
1 07 7/1 10:02 S. shot of — landfill from gully
1 08 7/1 10:15 stagnant water in gully surrounding landfill S. ~~S.~~
1 09 7/1 10:20 ~~st.~~ water w/ floating debris
1 10,11 7/1 10:30 NW, N view of Fill + gully
1 12 7/1 10:45 S. wetlands on eastside of landfill
1 13 7/1 11:00 E of broken fence w/ old gravel pit in bkgrd., concrete, rocks

7-1-99 Michelle Green

96-99-03-0001

/1/99 PhotoLog cont.

Date/Time	Direc.	Location	P/L

7-1-99 Michelle [illegible]

2

7/8/99 PhotoLog 06-99-03-000

35 mm Pentax # 696714

R/F	Date/Time	Dir	Subject	P/L
114	7/8 10:40	S	Vent for Sewage	MB/K

7/8/99 Michelle [illegible]

35mm Pentax # 696714

99 Photo Log 06-99-03-0001

Date/Time	Dir	Subject	P/W
7/15 1350	N	from dirt road toward fill	MB/BR
7/15 1410	S	showing overflow from fill to vicinity	BR/MB
7/15 1412	N	from hill overflow toward fill	BR/MB ~~MB/BR~~ MB
7/15 1450	S	wetland ~~sour~~ MB pond to east of fill	MB/BR
7/15 1500	SE	from fill towards east pond	MB/BR
7/15 1505	S	trench following fill goes south to outfall	MB/BR

7/15/99 Michelle Sherman

8/10/99 Photolog 06-99-03-0001

R/F 35mm Pentax # 696714

R/F	Date	Time	Dir	Subject	P/W
201	8/10	0830	N	Residence w/ swing to N of fill	MC/MH
202	8/10	0832	NE	Residence N of fill approx 30 yrds	
203	8/10	1030	N	SX SD12	MB/M
204	8/10	1035	SW	SX SD13	MB/M
205	8/10	1111	N	SX SD15	
206	8/10	1115	W	SX SD11	
207	8/10	1120	S	SX SD14	
208	8/10	1125	NE	shotgun casings + footprints	MB/

8/10/99 Michelle Sherman

8/11/99 Photolog 06-99-03-0001
35mm Pentax # 696714

F	Date	Time	Dir.	Subject	P/W
9	8/11	8:45	E	Sampling location for SDØ5 PPE to Elam Creek	MB/MC
Ø	8/11	8:46	NE	Just N of sample SDØ5	↓
11	8/11	9:10	N	Sampling location for SDØ4	↓
12	8/11	~~MB~~ 1ØØ5	N	Sampling location for SDØ2 w/ drums in pond in bkgrd.	↓
13	8/11	1Ø25	NE	Sampling location for SDØ1 at beginning of pond	MB/MC ↓
4	8/11	MB ~~1Ø37~~ 1Ø45	SE	Sampling location for SSØ1	MB/MC ↓
5	8/11	1115	E	Sampling location for SSØ2 + SSØ3	MB/MC ↓

8/11/99 Michelle Frazer

8/12/99 PhotoLog 06-99-03-000
35mm Pentax # 696714

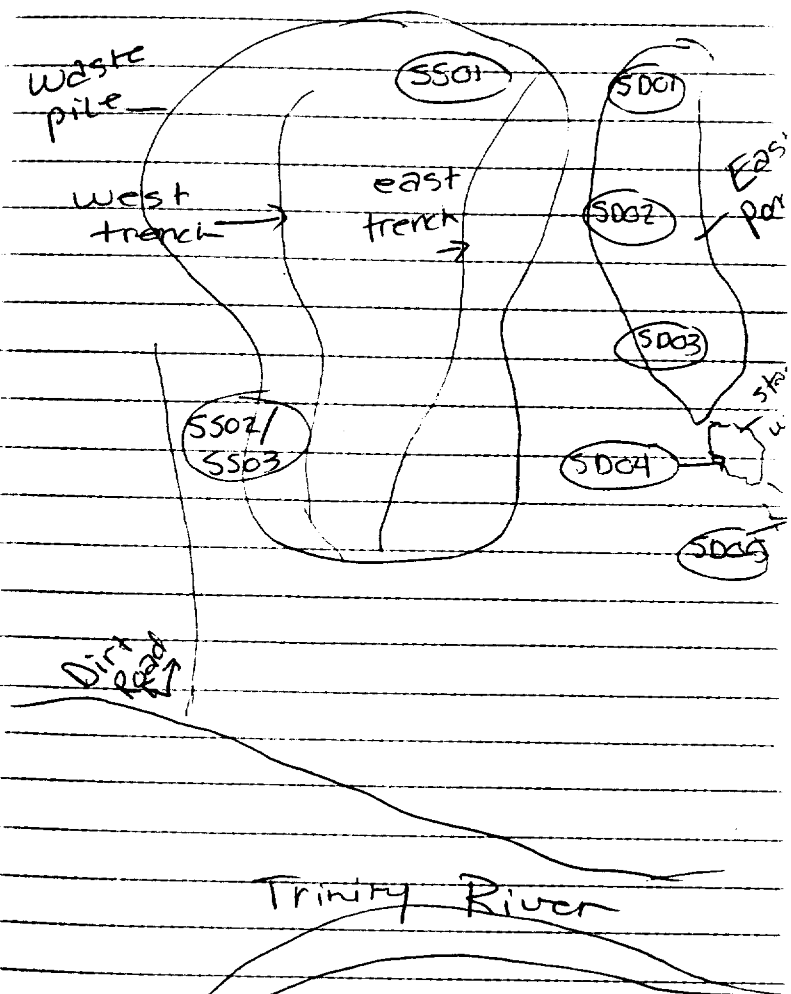
R/F	Date	Time	Dir	Subject	P/W
216	8/12	725	SE	Fishing bucy off of Elam Creek	MB/M
217	8/12	745	SE	Sampling location for SDØ8 + SDØ9	↓
218	8/12	805	N	Sampling location for SDØ7	MB/M ↓
219	8/12	815	N	Evidence of beavers	↓
22Ø	8/12	820	NE	beaver evidence	↓
221	8/12	905	N	Sampling location for SDØ6	MB ~~MB~~ ↓
222	8/12	955	S.	Sampling location for SD1Ø	MB/M ↓
223	8/12	1005	S.	Sampling location for SSØ4	MB/ ↓

8/12/99 Michelle Frazer

8/12/99 Michelle Stort

8/11/99 06-99-03-00

Sampling Locations For the day



— 8/11/99 Michelle Storer

8/12/99 06-99-03-COC

0600 START members Michelle Brown, Maggie Carson, Mike Mitchell + Jody Shires arrive at the E+E Warehouse.
Conduct site safety meeting
Weather - clear, hot, high ~ 109°F. Hazards - slip, trip, fall, snakes Agenda - collect samples from Elam Creek + 2 background SXS. Ship SXS. to labs, clean + put up supplies.

0700 START members arrive at site + start setting up for sampling, - assemble decon

0720 Begin sampling SD08 + SD09 at Elam creek S. of the dirt road sampling done by Mitchell + Shires

0755 Shires begins sampling of SD07 at south end of the curve in the creek

0850 Find sampling location

— 8/12/99 Michelle Brown —

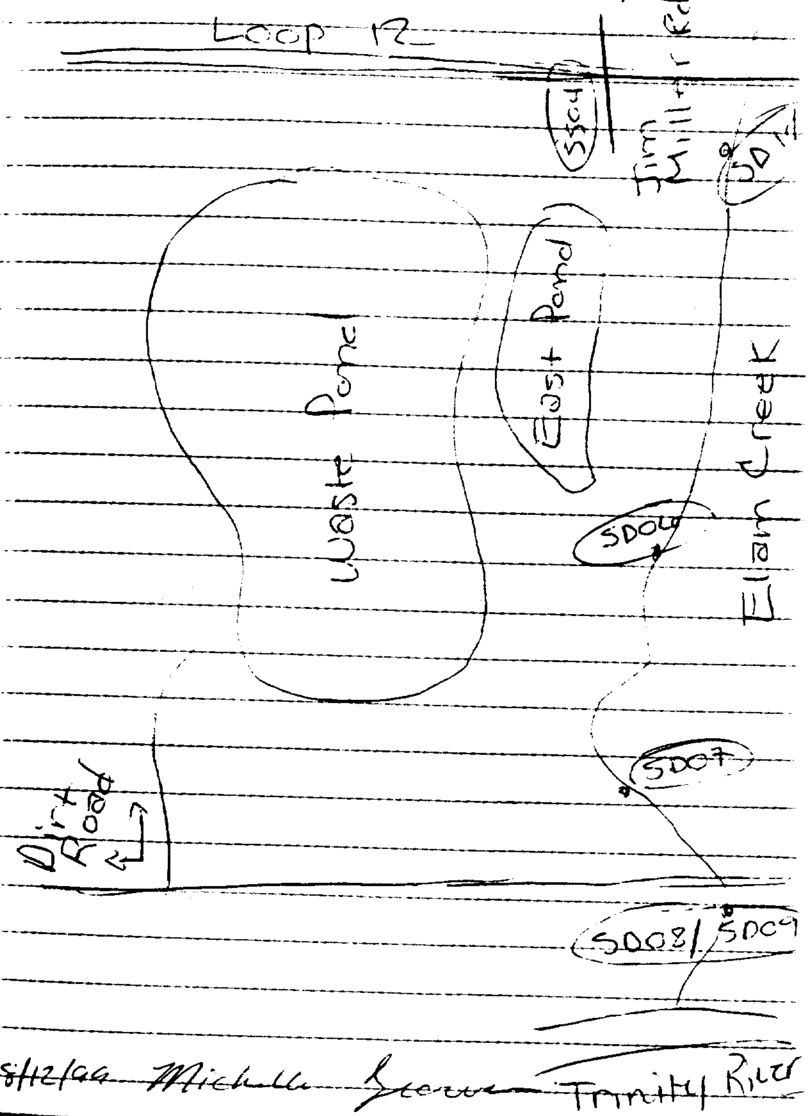
8/12/99 Michelle Brown

8/12/99 06-99-03-0001

For SD06 a Mitchell + Shires
begin sampling
0945 Begin ~~sample~~ MB
sampling background sx.
SD10 on Elam Creek
just south of Loop 12
1100 Begin sampling SS04
background soil sample
at the intersection of
Jim Miller + Gaylen Dr.
1030 START members depart
site + head for E+E
warehouse
11.30 START members
begin taging + labling
samples for shipment
1310 Called Charles Hutchinson
+ gave him information of
shipping
1330 STARTS Mitchell +
Brown take samples
to FedEx to be shipped
1400 START members
finish w/ cleaning-up at
warehouse + head home
8/12/99 Michelle Brown

8/12/99 06-99-03-000

Sampling Locations
For the Day



8/12/99 Michelle Brown

11/16/99 06-99-03-0001

~~1~~ mg 14:00 Late entry
The following observations were made during the field activities conducted between 7/1/99 and 8/12/99:

1. A portion of the northern fence to the property was missing by the nearest residence
2. The nearest residence was approximately 100 feet north of the site
3. There was evidence of people tresspassing on the south side of the site. There were footprints as well as shotgun casings.
4. There were no containment structures present at the site. The observed waste was uncovered and no liner was seen.
5. There is a park

Michelle Glover 11/16/99

11/16/99 06-99-03-00

located north-east of the site called Woodland Springs.

6. Elam Creek had a low flow. Portions contained growth of alg~~ea~~ae mg on top, it was assumed, based on how the creek looked that the flow was approximately 10 cfs.

Michelle Glover 11/16/99

Reference 16

United States

Environmental Protection Agency
Criminal Investigation Division

Report of Investigation

1. Case Title:	Herman Nethery Landfill	2. Case Number: [redacted]
3. Period of Investigation Covered:	August 30, 1996 - December 31, 1996	4. Office: Dallas

SYNOPSIS:

During September 9-11, 1996, the **Texas Natural Resource Conservation Commission** (TNRCC) and **EPA-CID** executed State **Search Warrants** at three (3) separate properties simultaneously in Dallas County. The warrants for this **Task Force** case were executed without incident and with the full cooperation of local, state and federal officials. Along with documents relating to landfill activities, over **$200,000** in monies (e.g., U.S. Currency & checks) were seized during the search warrants. The monies seized during the search warrants continue to be a controversial issue as efforts have been made by the suspects to regain the monies. The **Internal Revenue Service** (**IRS**) has been notified by EPA-CID of this pending case and has provided some support in the assessment of this "hot" issue.

EPA Region Six issued two separate and distinct **Administrative Orders** (AO) requiring that the landfill operation/recycling facility immediately cease and desist discharges to Waters of the United States. Both orders define CWA violations and both describe the illegal discharge of pollutants without a **NPDES** permit. One is related to storm water control while the other is related to discharges into several "abandoned" ponds. Both of the pending orders require action to be taken by the owners/operator of this facility/landfill.

Based on several pending civil actions (City and Federal) the unpermitted landfill was essentially "shut down" as of August 27, 1996. However recent tips to EPA-CID indicated that the landfill was back in operation as early as late October/early November 1996. EPA-CID was advised that the subject landfill was back in operation, and possibly at a new property adjacent to the "original" landfill location. EPA-CID and TNRCC investigated this allegation and confirmed that in fact a "new" dumping operation was active on what later would be defined as part of the original facility/property. This confirmation rekindled surveillance activity at the facility by the EPA/TNRCC Task Force. Heavy rains in the Dallas area, combined with surveillance activity helped confirm suspected storm water drainage pathways from the landfill site. This type of investigative evidence continues to support suspected violations of the **Clean Water Act** (CWA) - NPDES **Storm Water Permits.**

A) DETAILS OF INVESTIGATION

Reference is made to the last ROI dated 8/29/96.

On August 27, 1996, EPA Region Six issued the [redacted] primary suspects, [redacted] and [redacted] each an Administrative Order (AO) directing them to cease and desist all industrial activity at the facility identified as the "Nethery Recycling Facility" that cause discharges of pollutants to Waters of the United States. This facility is located at the same address and location as what has been previously identified by EPA-CID and TNRCC as the **Herman Nethery Landfill.**

On August 28, 1996, EPA-CID and TNRCC continued surveillance of the landfill operations in preparation of the execution of three search warrants relating to the landfill. The three locations are: a) the landfill; b) the residence/business of [redacted] and c) [redacted] of [redacted].

REPORT MADE BY:	Name: [redacted] Special Agent	Date Signed:
	Signature: [redacted]	1/3/97
APPROVING OFFICIAL:	Name: [redacted] Special Agent-in-Charge	Date Signed:
	Signature: [redacted] ASAC	1-6-97

CID Form 009 (5/94)

United States
Environmental Protection Agency
Criminal Investigation Division

2. Case Number: [redacted]

Continuation Sheet

On September 8, 1996, the warrants were signed by State Criminal District Judge Mark TOLLE, and a subsequently a warrant briefing was conducted by TNRCC and EPA-CID. While TNRCC is the lead State agency for the warrant, State Peace Officer support was provided by the **State Parks and Wildlife** department.

During September 9-11, 1996, state **warrants** were executed that three locations simultaneously and without incident. While documents were seized from the different locations as expected, over **$200,000** in cash and checks was seized by the State as "fruits of the crime." Seized documents were transported and logged into the EPA-CID evidence room for safe-keeping and accessibility. Seized monies were transported to and secured at a local bank safe depository. See ROI dated August 29, 1996, for details of the monies seizure.

During September 12-28, 1996, EPA-CID and TNRCC maintain a presence at the landfill entrance in order to observe any incoming vehicles attempting to dump illegal loads into the landfill. On three occasions, [redacted] spoke with SA [redacted] and SAC [redacted]. Details for these discussions are in MOIs for [redacted] dated 9/14/96, 9/17/96 & 9/20/96.

September 27, 1996, EPA Region Six issued [redacted] an AO directing him to cease and desist all discharges into several **ponds** identified as "**Waters of the United States**" and "**Navigable Water**" with respect to the CWA. This facility is located at the same address and location as what has been previously identified by EPA-CID and TNRCC as the **Herman Nethery Landfill.**

Throughout September and October, 1996, the investigation continued as information on specifically "how" business was conducted at the landfill was gathered via interviews with several of the known entities that had delivered loads to the landfill between August 1994 - September 1996. Information gathered is in the attached MOIs.

Based on observations and interviews of workers at the landfill, clients of landfill (truck drivers & owners) and the landfill [redacted], the following is the simple description of "how it worked" for operations at the **Herman Nethery Landfill** (**a.k.a., Nethery Recycling Center**):

The landfill opened for business in mid-1994 and operated seven days a week from sunrise to sunset (weather permitting). Dallas County records show [redacted] as the official [redacted] of the approximate 84-acre landfill, while [redacted] a [redacted], known as **Fruit of the Spirit** and allegedly [redacted] claimed not to have anything to do with the running of the landfill, and identified [redacted] as the [redacted] running the **Nethery Recycling Center** (NRC).

The fees for disposal range from $25 to $100 per truck load depending on the size and type of material. **NRC** accepted some materials at "no charge" (e.g., clean soil). Approximately 100-200 truck loads entered the NRC daily via the **Jim Miller Road** entrance. Cash to check ratio varied daily but was estimated by [redacted] (landfill worker) was 50-60% of the total take for the day. [redacted] claimed that the NRC grossed up to $4,000/day, and that he and [redacted] split the earnings 50/50. Some fees were collected on-site (cash & check), some checks were sent in via **U.S. Mail** and some were picked up in-person by [redacted]. Records of each transaction were apparently not kept and receipts were mostly provided upon request. Clients who paid by company check, could produce a paper trail of transactions with the landfill/Fruit of the Spirit (e.g., *Reyes Trucking* & *Moore Disposal*). [redacted] claimed not to have a lease with [redacted]; also that [redacted] acted as the [redacted] while [redacted] was the [redacted] of NRC and claimed that landfill was really a recycling center and that loads are refused if deemed inappropriate.

Loads came in the front gate, dropped their load, then either paid immediately or received a trip ticket as they exited. The trip tickets were apparently found with clients with a large volume of business coming in (e.g., *Reyes Trucking* & *Moore Disposal*). According to drivers, turnaround times were significantly less at NRC than at the City landfill located due south of the NRC across the Trinity River.

United States
Environmental Protection Agency
Criminal Investigation Division

2. Case Number: [redacted]

Continuation Sheet

Clients who asked for the permit status of the facility, were told that the NRC was a fully-permitted and legally operated **landfill** (not a *recycling* center). Some clients could produce copies of documents that were provided to them to backup [redacted] claim that the NRC was legal. The **City of Dallas** reviewed each of these documents and has confirmed that th only legal permit the property has, was issued to [redacted] and *Nethery Recycling Center*, for **mining**, and under the guise of **V&V Construction** (former owner's company).

Since late October 1996, dumping activity at the landfill had essentially "stopped" and most of the attention by the TNRC and EPA-CID was focused on reviewing evidence collected during the search warrants of September 1996. This comprehensive review was primarily stimulated by the fact that both the suspects [redacted] and [redacted] had challenged the seizure of the [illegible] during these warrants. The TNRCC in conjunction with the Dallas **County District Attorney's Office**, worked to determine the exact origin of these monies in order to show that in fact this cash was received by the suspects as payment for dumping at the landfill, not as part of legitimate operations as propose by the suspects. This assessment would require support from EPA-CID.

The District Attorney's office was offered a settlement amount significantly less than that seized (i.e., $5,000) and prompted continued and enhanced efforts by the Task Force to confirm the origin of the cash. From the Federal standpoint, [redacted] contacted [redacted] (IRS) and advised him of the status of the case with respect to the monies seized. In addition, the suspects had provided the District Attorney's office with written statements (interrogatories) which included considerable financial data with respect to the "earning" of this cash, including personal Federal Income Tax information for [redacted]. IRS opened an preliminary lead investigation file on both [redacted] and [redacted]. IRS did not open a full-blown case investigation at the time. During this "review" process, apparently new activity started up at the landfill.

On November 19, 1996, SA [redacted] was contacted by [redacted], owner of *Moore Disposal*, and was advised that the "landfill" may be open again for business. [redacted] stated that his drivers had noted that this was the word on the street, and that the "new" entrance was located near a salvage yard right off of Loop 12, near Jim Miller Road.

On November 22, 1996, ASAC [redacted] and State Investigator [redacted] conducted on-site surveillance at the suspected location. The investigators visually confirmed on-going dumping of materials identical to those found at the original landfill (located just east of this "new" area) and possible impact into **Waters of the United States**. During this surveillance, the investigators interviewed a witness at this "new" landfill site. Report of interview is pending completion by the State Investigator.

During November 23-24, 1996, TNRCC investigators spoke with several "new" landfill personnel and various drivers of the trucks that were dumping at this new area. Reports of these interviews are pending with State Investigators.

On November 25, 1996, [redacted] and SA [redacted] conducted on-site reconnaissance in an effort to document active storm water discharges from the subject property, and to document any active dumping in the "new" are located just west of the original landfill area.

On November 26, 1996, SA [redacted] conducted an aerial overflight (helicopter courtesy of Dallas Police) of the entire landfill property in an effort to further document apparent storm water drainage patterns. During this surveillance action, active **dumping was observed** and **photo documented.**

United States
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Criminal Investigation Division

2. Case Number: [redacted]

Continuation Sheet

On November 26, 1996, SA [redacted] and [redacted] conducted on-site covert surveillance in order to document dumping activity in the "new" dumping area.

On November 26, 1996, ASAC [redacted], SAC [redacted], RCEC [redacted], ADA [redacted], SI [redacted] and SA [redacted] spoke with [redacted], EPA Inspector, concerning the current status of the Storm Water AO and issues relevant to the on-going criminal investigation. [redacted] agreed not to pursue civil penalties in this case without first advising EPA-CID. [redacted] acknowledged receipt of a Storm Water Pollution Prevention Plan from the [redacted] and [redacted] related to their application for a Storm Water NPDES permit for the landfill (a.k.a., *Nethery Recycling Center*). See Memorandum to the File for [redacted] dated 11/26/96.

On November 27, 1996, SA [redacted] conducted review of related county records at the Dallas County Appraisal District and the County Records Building in order to define specifically the property owners adjacent to the landfill. This effort confirmed that [redacted] had in fact purchased a small piece of property (8.66 acre) that linked his existing 84-acre landfill to the southern-most edge of the rural portion of **Longacre Road.** This link allowed a continual link between this unused portion of Longacre Road and the original landfill area, normally accessed from Jim Miller Road. This now allowed a western or "back-door" entrance to the "new" landfill area with minimal if any disturbance to the local residences.

On November 29, 1996, SAC [redacted] and SA [redacted] interviewed [redacted], truck driver, located at the intersection of Longacre Road and Loop 12 (entrance to "new" landfill). [redacted] denied planning to dump [redacted] truck-load of shingles at this "new" landfill and was just "passing by" enroute to the City landfill.

On December 2, 1996, [redacted] and SA [redacted] interviewed [redacted], the consulting firm hired by the suspects to produce a **Storm Water Pollution Prevention Plan** for the "*Nethery Recycling Center.*" [redacted] indicated is role during his on-site inspection of the facility with the project manager, [redacted], was to identify the natural outfalls from the property as defined by [redacted]. [redacted] noted [redacted] knew very little about the property or the [redacted].

On December 2, 1996, SA [redacted] interviewed [redacted] of Fruit of the Spirit), while standing at the intersection of Longacre Road and Loop 12 (entrance to "new" landfill). [redacted] stated that he was not in operation at the "new" location and that he "did not know anything" about any dumping there. [redacted] denied discussing anything about dumping with an [redacted] of a truck full of wooden shingles, that was coincidently standing at the entrance to the "new" landfill. [redacted] spoke briefly to [redacted] (EPA Inspector) about the status of [redacted] Storm Water permit application and then departed. [redacted] acknowledged the sign posted in front of the Longacre entrance which stated "**Recycling, Dirt, Rock, Fill,**" but stated [redacted] had nothing to do with that operation. See MOI for [redacted] dated 12/2/96.

On December 2, 1996, SA [redacted] interviewed [redacted] located at the intersection of Longacre Road and Loop 12 (entrance to "new" landfill). [redacted] drove up in a dump truck loaded with wooden shingles shortly after [redacted] departed the same location. [redacted] told SA [redacted] that he was there to dump [redacted] truck load and that [redacted] had just called [redacted] so that [redacted] would come and unlock the gate to let [redacted] in. [redacted] pointed out that [redacted] had just drove away in a white Chevy dually pickup before he arrived. [redacted] provided SA [redacted] the **pager number** [redacted] used to call [redacted] and make the arrangements. [redacted] indicated that [redacted] use to likewise dump at the "old" landfill location when it was open. See MOI for [redacted] dated 12/2/96.

CID Form 8a (5/94)

United States
Environmental Protection Agency
Criminal Investigation Division

2. Case Number: [redacted]

Continuation Sheet

On December 3, 1996, [redacted] and SA [redacted] conducted an interview with [redacted] of EMI, and [redacted] for developing the [redacted] for the NRC. [redacted] stated based [redacted] assessment based on data provided to [redacted] and observation during [redacted] on-site visits. [redacted] indicated that [redacted] did not observe any mining operations nor any dumping operations during [redacted] visits (October 9 - November 26, 1996). [redacted] stated that [redacted] saw only minimal municipal trash and primarily construction debris. [redacted] acknowledged that [redacted] was not aware of any other facility that operated (recycling) on the same philosophy as NRC's (i.e., 7-yr burial; excavation; shred & sell). [redacted] stated [redacted] received minimal input from, [redacted] or [redacted] [redacted] acknowledged the seriousness of this document (SWPPP) for [redacted] clients and acknowledged that [redacted] reviewed this issue with both [redacted] and [redacted] as they were both present at [redacted] office for the "approval" and signing of the plan. [redacted] noted that the pair reviewed the document for approximately 45 minutes.

On December 5, 1996, SA [redacted] and SA [redacted] assisted the TNRCC in surveillance of potential dumping at the "new" dump site. The Agents observed three (3) trucks dump their loads of construction debris, roofing material and general trash during the cover of darkness and without the use of their headlights. The trucks entered via the Longacre Road entrance by lifting the gate off the hinges and entering with their headlights "off." Once the trucks had finished umping their loads, the drivers and vehicles were detained, questioned and finally **arrested** by State Peace Officers from the Texas Parks & Wildlife Department. Agents [redacted] and [redacted] assisted in the arrests of [redacted] for State violations.

On December 6, 1996, S [redacted] and SA [redacted] reviewed **Dallas County** records and confirmed that neither [redacted] nor [redacted] is officially registered with the county for doing business as (DBA) the following: *Nethery Recycling Center, Nethery Auto Wrecking, Nethery House moving, Nethery Auto Salvage,* [redacted] nor [redacted] and *Fruit of the Spirit.*

On December 9, 1996, SA [redacted] spoke with [redacted] EPA Inspector, concerning [redacted] recent discussions with [redacted] concerning the pending "wetlands" Administrative Order. [redacted] provided information that identifies [redacted] continued plans to reopen the original dumping location and confirmed [redacted] acknowledging "working" in the so-called "new" landfill. See MOI for [redacted] dated 12/9/96.

On December 10, 1996, AUSA [redacted] was briefed on status of the investigation. Based on the information provided, [redacted] agreed to accept the case based on the apparent CWA (Storm Water) violations and thus suggested that surveillance activity continue at the landfill.

On December 12, 1996, [redacted] EPA Inspector, conducted an on-site inspection of the "new" facility. [redacted] noted that during [redacted] inspection, [redacted] met with [redacted] at the original landfill location, and **observed** and **photo documented** the **dumping of wastes** (i.e., wood shingles) on-site by two dump trucks. [redacted] indicated that [redacted] claimed no responsibility for any dumping activity, but that it was all [redacted] actions, [redacted] merely had an arrangement with [redacted] to use [redacted] heavy machinery. [redacted] later stated that his plan was to "mine" the newly acquired "8-acre" area and that [redacted] was planning to start mining the following week. [redacted] indicated that [redacted] advised [redacted] that this new mining operatior would likewise require a Federal Storm Water permit, specific to [redacted] intended activity and location of operation. [redacted] noted that [redacted] indicated [redacted] would take appropriate action to obtain this permit. At the conclusion of this inspection, [redacted] delivered a copy of a letter from (EPA enforcement) directly to [redacted] that specifically described the types activities considered illegal per the August 27, 1996, AO. EPA simultaneously mailed (certified) out the letter to [redacted] Attorney and Environmental consulting firm that prepared the PPP required by the NPDES permit regulations See MOI for [redacted] dated 12/12/96.

From December 13-31, 1996, surveillance activities at the landfill were enhanced such to include **windshield surveys**, on-site surveys, photographic and hand-held video (camcorder) coverage of illegal activities. Included in this heightened surveillance was the usage of remote video camera and time-lapse tape-recording system (no audio). The objective of this activity was to document the continuance of the illegal activity in violation of the AO.

United States
Environmental Protection Agency
Criminal Investigation Division

2. Case Number: [redacted]

Continuation Sheet

December 13, 1996, SA [redacted] conducted surveillance at the landfill and in the process met with one of the residents living adjacent to the landfill [redacted] gave permission of the use of their private property for surveillance activity. [redacted] indicated that [redacted] heard "engines running" at 2-3:00 am approximately 2-3 days earlier a the original landfill site. A surveillance log is located in the case file.

On December 13, 1996, SI [redacted] **observed** and **video-taped dumping** of **wastes** at the "new" landfill area.

On December 16, 1996, SI [redacted] and SA [redacted] served a subpoena for the bank records of [redacted] to the Records Custodian of Nations Bank, Dallas, Texas.

On December 17, 1996, [redacted] and SA [redacted] met with AUSA [redacted] to discuss status of the case. [redacted] requested that additional interviews be conducted with citizens who lived in the neighborhood directly adjacent to the landfill operation.

On December 18, 1996, SA [redacted] contacted with [redacted] and [redacted] of *Wholesale Brokers* and requested to utilize their property for covert surveillance activity. [redacted] agreed to cooperate. This property is located directly across the highway from the "new" entry, or otherwise known as **Longacre Road entrance**.

On December 18 - 19, 1996, SI [redacted] and SA [redacted] initiated steps to install a remote video camera/transmitter system intended to provide 24-hour time-lapse recording of activities at the "new" landfill. No audio would be recorded for this type of surveillance. The primary objectives for this type of surveillance are: document evidence of violations; minimize on-site manpower and provide comprehensive coverage of target area.

On December 20, 1996, SA [redacted] **observed, video-taped** (8mm camcorder) and **photo documented dumping of wastes** in the "new" landfill. Consequently, the dumped material was "dozed," and the unidentified workers left immediately via the Longacre gate. At the gate a dark [redacted] series [redacted] was "parked" and eventually opened the gate for the departing workers (driving an old [redacted] The [redacted] was shown as being registered to [redacted] of Dallas, Texas. The driver of the [redacted] could not be visually **confirmed** as the suspect, [redacted] who drives an automobile very similar and matched very closely the known physical description of [redacted] It did however appear that the driver was "guarding" the gate while the workers bulldozed the recently dumped load and some older piles of trash. Upon exit, the driver opened that Longacre Road gate and let the [redacted] out. The [redacted] remain facing out at the location for several minutes before departing.

On December 22, 1996, the covert recording was placed to document activity in the "new" landfill area. Review of these tapes has not revealed any illegal activity to date. The system was provided and set up with assistance from the TNRCC and the University of Texas/Applied Research Labs (Austin, TX).

On December 28, 1996, a second surveillance package/system was created and covertly placed at the entrance/gate of the "new" landfill (Longacre Road). Review of these tapes has not revealed any illegal activity to date.

B) DEFENDANTS/SUSPECTS

[redacted] - See ROI dated 8/27/96

[redacted] - See ROI dated 8/27/96

[redacted]

United States
Environmental Protection Agency
Criminal Investigation Division

2. Case Number: [redacted]

Continuation Sheet

C) UNDEVELOPED LEADS

EPA-CID will formally refer this case to the U.S. Attorney Office, Northern District - Dallas, in the second quarter of FY97. EPA-CID and TNRCC will continue to investigate this case.

D) ATTACHMENTS

1. MOI with [redacted] dated 9/10/96.
2. MOI with [redacted] dated 9/10/96.
3. MOI with [redacted] dated 9/14/96.
4. MOI with [redacted] dated 9/17/96.
5 MOI with [redacted] dated 9/20/96.
MOI with [redacted] dated 10/1/96.
MOI with [redacted] dated 10/1/96.
8. MOI with [redacted] dated 10/3/96.
9. MOI with [redacted] dated 10/3/96.
10. MOI with [redacted] dated 10/3/96.
11. MOI with [redacted] dated 10/4/96.
12. MOI with [redacted] dated 10/8/96.
13. MOI with [redacted] dated 10/8/96.
14. MOI with [redacted] dated 10/8/96.
15. MOI with [redacted] dated 10/9/96.
16. MOI with [redacted] dated 10/9/96.
17. MOI with [redacted] dated 10/9/96.
18. MOI with [redacted] dated 10/9/96.
19. MOI with [redacted] dated 10/18/96.
20. Memorandum to File for [redacted] dated 11/26/96
21. MOI for [redacted] dated 12/2/96.
MOI for [redacted] dated 12/2/96.
23. MOI for [redacted] dated 12/9/96.
24. MOI for [redacted] dated 12/12/96.

12/31/96

Reference 17

F97-1789

EMERGENCY RESPONSE REPORT
JIM MILLER LANDFILL FIRE
DALLAS, DALLAS COUNTY, TEXAS

June 30, 1997

Prepared for:

Henry Thompson, Jr.
Project Officer
Program Management Branch
EPA - Region 6

Contract Number: 68-W6-0013

ecology and environment, inc.
International Specialists in the Environment

1999 Bryan Street, Dallas, Texas 75201
Tel: (214) 220-0318, Fax: (214) 855-1422

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ecology and environment, inc.
International Specialists in the Environment
1999 Bryan Street
Dallas, Texas 75201
Tel: (214) 220-0318, Fax: (214) 855-1422

F97-1789

Date:	**June 30, 1997**
To:	**Don Smith, TM** **EPA Region 6, Response and Prevention Branch**
Thru:	**Henry Thompson, Jr., PO** **Program Management Branch**
Thru:	**Chris Quina, STL** **Region 6, Superfund Technical Assistance and Response Team**
From:	**Scott Fraser, PM** **Region 6, Superfund Technical Assistance and Response Team**
Subject:	**Jim Miller Landfill Fire, Emergency Response** **Dallas, Dallas County, Texas** **TDD No. S06-97-02-0016** **PAN No. 029201RZXX**

LAT:	**32° 42' 22.1" N**
LONG:	**96° 42' 07.5" W**

On March 16, 1997, site coordinates for the Command Post located at the landfill were identified with a Trimble Navigation Scoutmaster. Point averaging was used in an autonomous mode based on North American Datum 1927 (NAD 27).

INTRODUCTION

On February 28, 1997, the Region 6 Superfund Technical Assistance and Response Team (START) was tasked by the U.S. Environmental Protection Agency Response and Prevention Branch (EPA-RPB) to conduct on-site monitoring activities in response to a landfill fire. The fire occurred at an unlicensed landfill located in Dallas, Dallas County, Texas (Attachment A: Site Location Map). The owner/operator of the illegal landfill is Herman Nethery, the potentially responsible party (PRP) for the fire. Specific tasks included: respond to the scene and provide emergency response support; provide written and photographic documentation of the incident; coordinate with state and local officials; and brief the Task Monitor (TM) of the situation.

BACKGROUND

The site is southwest of the intersection of Jim Miller Road and Gayglen Drive in Dallas, Dallas County, Texas. The landfill is bordered by a residential neighborhood to the north, the Woodland Springs Park to the east, the Trinity River and McCommas Bluff Park to the south, and non-operational quarry land to the west. The nearest residents are located approximately 30 yards north of landfill operations. An apartment complex is north of the intersection of Jim Miller Road and Gayglen Drive. The site is an unlicensed and unpermitted landfill that accepted construction debris, municipal waste, medical wastes, motor oil, and hydraulic fluid. The landfill covers approximately 30 acres, reaches a depth of 40 feet, and may contain as much as 2 million cubic yards of solid waste.

The City of Dallas took civil action against Mr. Nethery in 1996. In June 1996, the Texas Natural Resource Conservation Commission (TNRCC) and the EPA-Criminal Investigation Division (CID) began to investigate the landfill operations for possible criminal intent. On September 13, 1996, TNRCC and EPA-CID conducted an inspection at the landfill. The inspectors observed a smoldering area within the southern section of the landfill and notified both the Dallas Fire Department (DFD) and EPA-RPB. On September 13, 1996, START responded to the fire, conducted air monitoring, and documented site conditions. Air monitoring equipment was used to detect volatile organic compounds (VOCs), cyanide, hydrogen sulfide, phosgene and radiation. Monitoring results did not indicate the presence of these contaminants in concentrations greater than background levels (TDD No. S06-96-09-0013). EPA issued a cease-and-desist order, which closed the landfill because of the possible migration of surface water runoff from the landfill to the Trinity River.

ACTIONS TAKEN

On February 28, 1997, START members Anan Hammad and David Crow mobilized to the site and arrived at 1245 hours. START met with DFD officials and R. L. Hunt of the City of Dallas Street Department. Fire hoses and heavy equipment, including front-end loaders, trackhoes, and a compactor, were used to extinguish the pockets of smoldering debris (Attachment C: photo Nos. 101, 102 and 103). START completed the on-site investigation at 1405 hours and debriefed OSC Don Smith of site conditions. OSC Smith concluded that no further assistance was necessary, and the START members were instructed to depart from the site.

On March 12, 1997, START members Scott Fraser and Koeby Johnson returned to the site because of additional fire fighting activity related to the landfill. Apparently, construction debris continued to burn below the landfill surface. START met with federal, state, and local officials including OSC Ky Nichols, DFD Fire Chief Wachsman, Mike Rockman of the City of Dallas Water Department, Rodger Jayroe of the City of Dallas Environmental and Health Services, and Norris Stough with the City of Dallas Department of Street, Sanitation and Code Enforcement. OSC Nichols instructed START to conduct air monitoring along the perimeter of the impacted area at the landfill. START utilized a Toxic Vapor Analyzer (TVA) for the detection of VOCs, Monitoxes for the detection of cyanides and phosgene, and a MSA Passport for the detection of explosive atmosphere, carbon monoxide, and hydrogen sulfide. Elevated levels of VOCs were detected at the source of several smoke plumes, but, this is typical of combustion. Air monitoring conducted in ambient air (breathing zone) did not indicate the presence of an explosive atmosphere, carbon monoxide, hydrogen sulfide, VOCs, cyanide, or phosgene at concentrations greater than background levels. START completed the on-site investigation at 1300 hours and debriefed OSC Nichols of site conditions. OSC Nichols instructed the START members to depart from the site and to return the following day to continue air monitoring support.

START remobilized to the site 11 times to conduct air monitoring activities. Additional contaminants were monitored during subsequent visits to the site. Elevated levels were not detected for the following contaminants: carbon monoxide, phosgene, hydrogen cyanide, hydrogen sulfide, acrolein as formaldehyde, nitrogen dioxide, ammonia, sulfur dioxide, VOCs or combustible gases. For specific locations and results, refer to Attachment B and Attachment E.

On March 6 and March 7, 1997, TNRCC collected three instantaneous canister samples, or "puff samples," which were analyzed for VOCs by the TNRCC laboratory. Two samples were taken from smoke plumes on site, while the third was located in the residential area along the northern border of the site. For the two on-site samples, several VOCs were measured at concentrations exceeding their effects screening levels (ESLs) or odor-thresholds. The level of VOCs detected in the residential sample were below health-based action levels. For a further description of sample results, sampling locations, and ESLs, refer to Attachment M. A response contractor, EmTech Environmental Services, Inc., performed personnel air monitoring for excavation employees working at the site from March 13 through March 14, 1997. The sample results for Industrial Hygiene Metals and Total VOCs were near or below detection limits (Attachment L).

On March 24, 1997, START members Scott Fraser and Jeff D'Agostino mobilized to the site to perform air sampling. Air sampling was conducted at sensitive receptor areas to verify that the public was not at risk from the smoke and plume particulates. Two SKC pumps were used at each of four locations to determine the presence of total particulates, metals, and polynuclear aromatics (PAHs/PNAs). The sampling stations were located at the western end of Western Hills Drive, W. A. Blair Elementary School, Frederick Douglas Elementary School and the southwest side of the landfill excavation near the Trinity River (Attachment B and Attachment F). The results showed that all contaminant levels were near or below detection limits (Attachment G and Attachment H).

CONCLUSION

For the duration of the project, EPA-RPB coordinated air monitoring and air sampling with City of Dallas officials. Air monitoring results were reported to the City of Dallas on an interim basis. Extensive coordination was required to meet the needs of EPA and the City of Dallas.

Reference 18

September 12, 1996

TOPIC: Nethery Recycling Cease and Desist Order

BACKGROUND INFORMATION:

Specific "Industrial Activities" [40 CFR 122.26(b)(14)] are required to have an National Pollutant Discharge Elimination System (NPDES) Storm Water permit and a Storm Water Pollution Prevention Plan to assure storm water runoff will not impact water quality.

Nethery Recycling is a business operating in the Pleasant Grove area of Dallas. The facility is an 82 acre site that receives construction debris and other materials. The facility has received roughly 2 million cubic feet of material since August 1994, when it began operation. The facility site contains an "East Pond" which constitutes a "Waters of the U.S." The East pond receives some of the facility storm water runoff. Much of the storm water runoff and overflow from the East pond discharges through unnamed drainage conveyances to Elam Creek, which then discharges to the Trinity River.

CURRENT STATUS:

The city of Dallas and the State of Texas believe the facility is a landfill and should be permitted as such. Nethery Recycling claims the facility is a recycling operation and does not require landfill permits. The city of Dallas has ordered the facility to cease operations until city permits have been obtained. A judge recently ordered the facility to cease operations. Nethery Recycling has continued operation under the assumption that they do not need city or state permits.

"Industrial Activities" that require NPDES permit coverage include both landfills and recycling operations (SIC 5093). The facility did not have NPDES permit coverage. EPA issued a "cease and desist" Administrative Order on August 27, 1996 requiring the facility to stop any "industrial activity" until it comes into compliance with the Clean Water Act. The facility ceased operations on August 28, 1996.

Nethery Recycling submitted a Notice of Intent (NOI) application to EPA on August 29. A complete NOI gives the applicant NPDES permit coverage 2 days after the postmark of the NOI and Nethery Recycling resumed operation on August 31. The NOI was incomplete (latitude and longitude omitted) and the facility was informed of the deficiency in a telephone call on September 4. The facility has acquired a consultant to prepare the pollution prevention plan and the facility said they would have their consultant complete and resubmit the NOI and drop off a copy at EPA offices.

The facility has obtained NDPES storm water permit coverage through the storm water "Multi-Sector" permit. This permit requires the facility to prepare and implement a storm water pollution prevention plan by September 25, 1996, and to begin sampling in the 4th Quarter of 1996. The NOI indicates the facility is SIC 5093, scrap and waste material recycling.

TECHNICAL CONCERNS:

National Urban Runoff Program reports and CWA 305(b) reports contain effluent data demonstrating that storm water runoff from both landfills and recycling operations adversely impact water quality. This facility is operating under unknown environmental circumstances and impacting at least three waters of the United States. The size of the facility, types of material, and proximity to Waters of the United States were significant in determining that a quick EPA response was necessary.

COMMUNITY CONCERNS:

The local community has many concerns about the facility and asked the city to take action.
actions including issuing abou
However, the city has failed t
activity. Channel 4 news high
segment in the Summer of 1995.

Mr. Taylor Sharpe
Federal Enforcement
Officer
USEPA, Region 6

FUTURE PROPOSED ACTIONS:

EPA plans to assure compliance
reviewing the facility's storm
plan when the facility appears
"Show Cause" meeting. The fac
prevention plan will be used i
action. The facility will be
compliance evaluation inspecti
submitting to EPA, storm water
quarter of 1996 and EPA will e
effluent quality.

CONTACT/TELEPHONE NUMBER: Taylor Sharpe (214/665-7112)

Reference 19

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WHITE ROCK LAKE QUADRANGLE

TEXAS–DALLAS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 GARLAND 15' QUADRANGLE

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Culture and drainage in part compiled from aerial photographs taken 1952 and 1956. Topography from city of Dallas surveys 1954 and by planetable surveys 1958

Polyconic projection. 1927 North American datum
10,000-foot grid based on Texas coordinate system, north central zone
1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue

Red tint indicates areas in which only landmark buildings are shown

Revisions shown in purple compiled from aerial photographs taken 1968 and 1973. This information not field checked

Purple tint indicates extension of urban areas

UTM GRID AND 1973 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, P.O. BOX 25286, DENVER, COLORADO 80225
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route — U. S. Route — State Route

WHITE ROCK LAKE, TEX.
SW/4 GARLAND 15' QUADRANGLE
N3245—W9637.5/7.5

1958
PHOTOREVISED 1968 AND 1973
AMS 6649 I SW—SERIES V882

ISBN 0-607-53310-2

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

HUTCHINS QUADRANGLE
TEXAS-DALLAS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

Produced by the United States Geological Survey
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1952 and 1956
Topography from City of Dallas surveys 1954 and by plane-table surveys 1958
North American Datum of 1927 (NAD 27). Projection and 10,000-foot grid ticks: Texas Coordinate System, north central zone (Lambert Conformal Conic). 1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue
The difference between NAD 27 and North American Datum of 1983 (NAD 83) for 7.5 minute intersections is given in USGS Bulletin 1875. The NAD 83 is shown by dashed corner ticks
Red tint indicates areas in which only landmark buildings are shown

UTM GRID AND 1973 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Revisions shown in purple compiled from aerial photographs taken 1968 and 1973. This information not field checked
Purple tint indicates extension of urban areas

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

3206-313

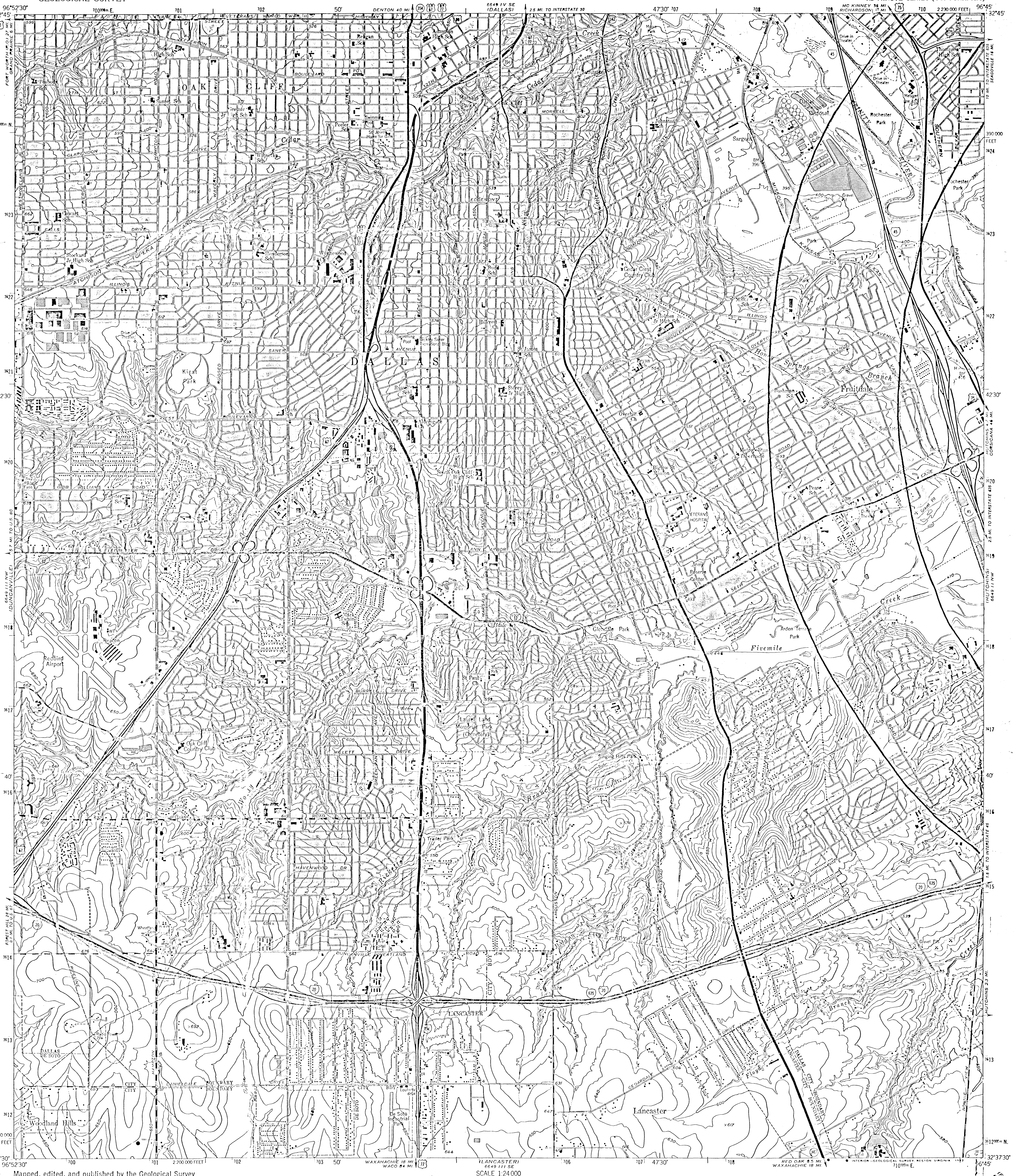
ROAD CLASSIFICATION
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt
Interstate Route
U. S. Route
State Route

HUTCHINS, TEX.
32096-F6-TF-024
1958
PHOTOREVISED 1968 AND 1973
DMA 6649 II NW-SERIES V882

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

OAK CLIFF QUADRANGLE

TEXAS-DALLAS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Culture and drainage in part compiled from aerial photographs taken 1952 and 1956. Topography from City of Dallas surveys 1954 and by planetable surveys 1958

Polyconic projection. 10,000-foot grid ticks based on Texas coordinate system, north central zone. 1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue. 1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 11 meters south and 26 meters east as shown by dashed corner ticks

Red tint indicates areas in which only landmark buildings are shown

There may be private inholdings within the boundaries of the National or State reservations shown on this map

UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Revisions shown in purple and woodland compiled from aerial photographs taken 1979 and other sources. This information not field checked. Map edited 1981

Purple tint indicates extension of urban areas

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

3296-324

ROAD CLASSIFICATION

Primary highway, all weather, hard surface
Light-duty road, all weather, improved surface
Secondary highway, all weather, hard surface
Unimproved road, fair or dry weather

Interstate Route　U. S. Route　State Route

OAK CLIFF, TEX.
N3237.5-W9645/7.5

1958
PHOTOREVISED 1981
DMA 6649 III NE-SERIES V882

Reference 20

DATA QUALITY ASSURANCE REVIEW

SITE NAME Nethery Landfill

CERCLIS

PAN 080801SIXX TDD NUMBER 06-99-03-0001

CASE NUMBER/WORK ORDER 27273/6S256 SDG/PROJ. NUMBER FCX38/MFJS80

E & E has completed a QA review for Case No. 27273/6S256, SDG No. FCX38/MFJS80, Nethery Landfill. Nineteen sediment/soil samples were analyzed for TCL volatiles, TCL semivolatiles, TCL pesticides/PCBs and TAL metals by Southwest Laboratory of Oklahoma. Inc. and DataChem Laboratories, Inc. Sample numbers are listed below.

SAMPLE NUMBERS

SS-01	SD-09	
SS-02	SD-10	
SS-03	SD-11	
SS-04	SD-12	
SD-01	SD-13	
SD-02	SD-14	
SD-03	SD-15	
SD-04		
SD-05		
SD-06		
SD-07		
SD-08		

This data package was validated to determine if Quality Control (QC) specifications were achieved, following *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (February, 1994), *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (February, 1994), *Quality Assurance/Quality Control Guidance for Removal Activities* (April, 1990), and the Regional Protocol for Holding Times, Blanks, and VOA Preservation (April 13, 1989). Specific data qualifications are listed in the following discussion.

REVIEWER Michelle Brown DATE 11-01-99

Data Qualifiers

Data Qualifier Definitions were supplied by the Office of Solid Waste and Emergency Response (September 1989) and are included in the Functional Guidelines. Data qualifiers may be combined (UJ, QJ) with the corresponding combination of meanings. Additional qualifier may be added to provide additional, more specific information (JL, UB, QJK), modifying the meaning of the primary qualifier. Addition qualifiers utilized by E & E are H, L, K, B, Q, and D.

U - The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation or detection limit, which has been adjusted for sample weight/sample volume, extraction volume, percent solids, sample dilution or other analysis specific parameters.

An additional qualifier, "B", may be appended to indicated that while the analyte was detected in the sample, the presence of the analyte may be attributable to blank contamination and the analyte is therefore considered undetected with the sample detection or quantitation limit for the analyte being elevated.

J - The analyte was analyzed for, but the associated numerical value may not be consistent with the amount actually present in the environmental sample or may not be consistent with the sample detection or quantitation limit. The value is an estimated quantity. The data should be seriously considered for decision-making and are usable for many purposes.

An additional qualifier will be appended to the "J" qualifier that indicates the bias in the reported results:

L Low bias

H High bias

K Unknown bias

Q The reported concentration is less than the sample quantitation limit for the specific analyte in the sample.

The L and H qualifier will only be employed when a single qualification is required. When more than one quality control parameter affects the analytical result and a conflict results in assigning a bias, the result will be flagged JK.

R - Quality Control indicates that data are unusable for all purposes. The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary for verification to confirm or deny the presence of an analyte.

N - The analysis indicates the presence of analyte for which there is presumptive evidence to make a "tentative identification."

D - The concentration reported was determined in the re-analysis of the sample at a secondary dilution.

CLP DATA REVIEW

A review of the data validation conducted by the ESAT contractor has been completed with an emphasis on HRS criteria. Results of this review follow.

The validation report is complete and no modifications of the qualifications listed are necessary. The data qualifier flags utilized by the ESAT contractor have been modified as described in the cover for this review.

SQL Factors

Inorganic sample quantitation limits (SQLs) were greater than CRDLs in the following samples due to the factors listed below.

SAMPLE NO	ANALYTE	DF	ASV OR ASW	% SOLIDS	ADV	SQL FACTOR
SS01	ICP Hg		1.02 0.2	98.3 98.3	0.2 0.1	0.203 0.509
SS02	ICP Hg		1.0 0.2	98.9 98.9	0.2 0.1	0.198 0.506
SS03	ICP Hg		1.0 0.2	98.6 98.6	0.2 0.1	0.203 0.507
SD01	ICP Hg		1.0 0.2	72.7 72.7	0.2 0.1	0.275 0.688
SD02	ICP Hg		1.0 0.2	70.6 70.6	0.2 0.1	0.283 0.708
SD03	ICP Hg		1.0 0.2	72.9 72.9	0.2 0.1	0.274 0.686
SD04	ICP Hg		1.0 0.2	62.7 62.7	0.2 0.1	0.319 0.797
SD05	ICP Hg		1.0 0.2	83.5 83.5	0.2 0.1	0.240 0.599
SD06	ICP Hg		1.0 0.2	76.6 76.6	0.2 0.1	0.261 0.653
SD07	ICP Hg		1.0 0.2	70.3 70.3	0.2 0.1	0.284 0.711
SD08	ICP Hg		1.0 0.2	72.5 72.5	0.2 0.1	0.276 0.690

SAMPLE NO	ANALYTE	DF	ASV OR ASW	% SOLIDS	ADV	SQL FACTOR
SD09	ICP Hg		1.0 0.2	78.5 78.5	0.2 0.1	0.255 0.637
SD10	ICP Hg		1.0 0.2	83.4 83.4	0.2 0.1	0.240 0.600
SD11	ICP Hg		1.0 0.2	78.2 78.2	0.2 0.1	0.256 0.639
SD12	IP Hg		1.0 0.2	71.1 71.1	0.2 0.1	0.281 0.703
SD13	ICP Hg		1.0 0.2	81.8 81.8	0.2 0.1	0.244 0.611
SD14	ICP Hg		1.0 0.2	89.7 89.7	0.2 0.1	0.223 0.557
SD15	ICP Hg		1.0 0.2	90.7 90.7	0.2 0.1	0.221 0.551
SS04	ICP Hg		1.0 0.2	86.2 86.2	0.2 0.1	0.232 0.580

Volatile sample quantitation limits (SQLs) varied from the CRQLs in the following samples due to the factors listed below.

SAMPLE NO.	LEVEL	% SOLID moisture	SAMPLE WT/VOL (gm/ml)	DF	SEV (ul)	SAV (ul)	SQL FACTOR
SS01	Low	2					1.02
SS02	Low	2					1.02
SS03	Low	2					1.02
SD01	Low	26					1.35
SD02	Low	20					1.25
SD03	Low	33					1.49
SD04	Low	38					1.61
SD05	Low	16					1.19
SD06	Low	16					1.19

SAMPLE NO.	LEVEL	% SOLID moisture	SAMPLE WT/VOL (gm/ml)	DF	SEV (ul)	SAV (ul)	SQL FACTOR
SD07	Low	32					1.47
SD08	Low	22					1.28
SD09	Low	17					1.20
SD10	Low	17					1.20
SD11	Low	42					1.72
SD12	Low	20					1.25
SD13	Low	15					1.18
SD14	Low	9					1.10
SD15	Low	15					1.18
SS04	Low	1					1.01

DF = dilution factor, SEV = soil extract volume, SAV = soil aliquot volume

Semivolatile quantitation limits (SQLs) varied from the CRQLs in the following samples due to the factors listed below.

SAMPLE NO.	LEVEL	% SOLID moisture	SAMPLE WT/VOL (gm/ml)	GPC y/n	DF	CEV (ul)	SQL FACTOR
SS01	Low	2	31.2	y	2		1.96
SS02	Low	2	32.4	y			0.945
SS02RE	Low	2	32.2	y			0.951
SS03	Low	2	33.4	y			0.916
SD01	Low	26	31.5	y			1.29
SD01DL	Low	26	31.5	y	2		2.57
SD02	Low	20	30.9	y	2		2.43
SD02DL	Low	20	30.9	y	4		4.85
SD03	Low	33	31.1	y			1.44

SAMPLE NO.	LEVEL	% SOLID moisture	SAMPLE WT/VOL (gm/ml)	GPC y/n	DF	CEV (ul)	SQL FACTOR
SD04	Low	38	32.5	y			1.49
SD05	Low	16	32.9	y			1.08
SD06	Low	16	33.6	y			1.06
SD07	Low	32	32.0	y			1.38
SD08	Low	22	32.1	y			1.20
SD09	Low	17	31.4	y			1.15
SD10	Low	17	31.9	y			1.13
SD10RE	Low	17	32.4	y			1.12
SD11	Low	42	31.4	y	2		3.29
SD12	Low	20	31.8	y			1.18
SD13	Low	15	31.2	y			1.13
SD14	Low	9	33.5	y			0.984
DS15	Low	15	31.4	y			1.12
SS04	Low	1	33.1	y			0.915

DF = dilution factor, CEV = concentrated extract volume

Pesticide/PCB quantitation limits (SQLs) varied from the CRQLs in the following samples due to the factors listed below.

SAMPLE NO.	LEVEL	% SOLID moisture	SAMPLE WT (gm)	GPC y/n	DF	CEV (ul)	SQL FACTOR
SS01	Low	2	30.7	y	10		9.97
SS01DL	Low	2	30.7	y	100		99.7
SS02	Low	2	33.2	y	10		9.22
SS02DL	Low	2	33.2	y	100		92.2
SS03	Low	2	30.6	y	10		10.0
SS03DL	Low	2	30.6	y	100		100.0
SD01	Low	26	30.6	y	10		13.2

SAMPLE NO.	LEVEL	% SOLID moisture	SAMPLE WT (gm)	GPC y/n	DF	CEV (ul)	SQL FACTOR
SD01DL	Low	26	30.6	y	100		132.5
SD02	Low	20	33.4	y	10		11.2
SD02DL	Low	20	33.4	y	100		112.3
SD03	Low	33	32.1	y	10		13.9
SD03DL	Low	33	32.1	y	100		139.5
SD04	Low	38	31.4	y	10		15.4
SD04DL	Low	38	31.4	y	100		154.1
SD05	Low	16	32.4	y	10		11.0
SD05DL	Low	16	32.4	y	100		110.2
SD06	Low	16	33.2	y	10		10.8
SD06DL	Low	16	33.2	y	100		107.6
SD07	Low	32	31.9	y	10		13.8
SD07DL	Low	32	31.9	y	100		138.3
SD08	Low	22	32.2	y	10		11.9
SD08DL	Low	22	32.2	y	100		119.4
SD09	Low	17	31.7	y	10		11.4
SD09DL	Low	17	31.7	y	100		114.0
SD10	Low	17	31.7	y	10		11.4
SD10DL	Low	17	31.7	y	100		114.0
SD11	Low	42	30.2	y	10		17.1
SD11DL	Low	42	30.2	y	100		171.3
SD12	Low	20	31.0	y	10		12.1
SD12DL	Low	20	31.0	y	100		121.0
SD13	Low	15	30.6	y	10		11.5
SD13DL	Low	15	30.6	y	100		115.3
SD14	Low	9	31.8	y	10		10.4
SD14DL	Low	9	31.8	y	100		103.7
SD15	Low	15	32.3	y	10		10.9

SAMPLE NO.	LEVEL	% SOLID moisture	SAMPLE WT (gm)	GPC y/n	DF	CEV (ul)	SQL FACTOR
SD15DL	Low	15	32.3	y	100		109.3
SS04	Low	15	34.0	y	10		8.9
SS04DL	Low	15	34.0	y	100		89.1

DF = dilution factor, CEV = concentrated extract volume

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO.	27273	SITE	NETHERY LF
LABORATORY	SWOK	NO. OF SAMPLES	19
CONTRACT#	68-D5-0026	MATRIX	soil
SDG#	FCX38	REVIEWER (IF NOT ESD)	ESAT
SOW#	RAS OLM03.2	REVIEWER'S NAME	Mike Fertitta and Gene Zhu
ACCT#	950102DJN64 SF#50102DZZ	COMPLETION DATE	September 28, 1999

SAMPLE NO.'s:					
	FC-X38	FC-X42	FC-X46	FC-X50	FC-X54
	FC-X39	FC-X43	FC-X47	FC-X51	FC-X55
	FC-X40	FC-X44	FC-X48	FC-X52	FC-X56
	FC-X41	FC-X45	FC-X49	FC-X53	

DATA ASSESSMENT SUMMARY

	VOA	BNA	PEST
1. HOLDING TIMES	O	M	O
2. GC/MS TUNE/INSTR. PERFORM.	O	O	O
3. CALIBRATIONS	O	O	O
4. BLANKS	O	M	O
5. SMC/SURROGATES	O	O	O
6. MATRIX SPIKE/DUPLICATE	O	O	O
7. OTHER QC	O	O	O
8. INTERNAL STANDARDS	O	O	N/A
9. COMPOUND ID/QUANTITATION	O	M	O
10. PERFORMANCE/COMPLETENESS	O	O	O
11. OVERALL ASSESSMENT	O	M	O

O = Data had no problems.
M = Data qualified due to major or minor problems.
Z = Data unacceptable.
NA = Not applicable.

ACTION ITEMS: Two BNA extractions exceeded the contractual holding time limit by eight days. The data package arrived 11 working days late.

AREA OF CONCERN: The laboratory omitted the GC/MS confirmation analysis for dieldrin in Pest/PCB sample FC-X42. Initial Pest/PCB analyses (10X dilution) are not billable because the associated ending PEM calibrations are noncompliant. Some BNA results were qualified because of laboratory contamination and inconsistent reanalysis results.

NOTABLE PERFORMANCE:

COMMENTS/CLARIFICATIONS
REGION 6 CLP QA REVIEW

CASE 27273 **SDG** FCX38 **SITE** NETHERY LF **LAB** SWOK

The following is a summary of sample qualifiers used by Region 6 in reporting this CLP data:

No.	Acceptable	Provisional	Unacceptable
VOA	19		
BNA	15	4	N/A
PEST	19		

COMMENTS: The case consisted of 19 soil samples for complete RAS organics analysis by OLM03.2. The OTR/COC Records designated samples FC-X39/FC-X40 and FC-X48/FC-X49 as field duplicate pairs and samples FC-X38 and FC-X46 as laboratory QC samples. The laboratory chose to perform QC on sample FC-X38 since only one set of QC is required by the SOW. The CRQL's require %moisture correction for soil samples and additional dilution correction for diluted samples. Corrected CRQL's are reported by the laboratory and are referred to as sample quantitation limits (SQL') in this report.

The data package contained the following contractually noncompliant items.

- The extractions for BNA samples FC-X39RE and FC-X50RE exceeded the contractual holding time limit by eight days.
- The laboratory omitted the contract-required GC/MS confirmation analysis for dieldrin in Pest/PCB sample FC-X42. Reanalysis is requested.
- All initial Pest/PCB sample analyses (at 10X dilution) are not compliant or billable because they are associated with PEM standards that failed contractual criteria.
- The data package arrived 11 working days late for the required 14-day turnaround time.

All VOA and BNA samples were analyzed at the low level. VOA samples FC-X38 and FC-X51 contained acetone at concentrations above the SQL's.

BNA Samples FC-X41 and FC-X42 required reanalyses at up to 4X dilution because of high concentrations of fluoranthene (up to 10,000 μg/L) and pyrene (up to 6,400 μg/L). Other TCL analytes detected at concentrations above SQL's in the samples for this SDG included bis(2-ethylhexyl)phthalate, carbazole, and PAH's.

CASE 27273 SDG FCX38 SITE NETHERY LF LAB SWOK

COMMENTS (continued): The laboratory apparently analyzed samples FC-X38, FC-X38MS/MSD, and FC-X51 at 2X dilution because of high levels of non-target compounds. Samples FC-X39 and FC-X50 were re-extracted and reanalyzed because surrogate recoveries failed QC criteria. The reanalyses corrected the surrogate problems, so only data for samples FC-X39RE and FC-X50RE are to be used. However, the re-extraction was performed 18 days after the collection for both samples.

Pest/PCB With Region 6 approval, the laboratory submitted data for both the initial analysis (at 10X dilution) and the diluted reanalysis (at 100X dilution) for each sample. The initial analyses are associated with ending PEM calibrations that failed contractual criteria, and the laboratory blamed this problem on sample matrix effects. The reviewer recommends that only the diluted reanalysis data be used although the 100X dilution substantially escalated the SQL's. The only target compound reported above the elevated SQL is dieldrin at a high concentration (940 µg/Kg) in sample FC-X42. The laboratory failed to perform the contract-required GC/MS confirmation for dieldrin, and reanalysis is recommended.

Data are provisional for four BNA samples because of problems with holding times, laboratory contamination, and compound quantitation. The technical usability of all reported sample results is indicated by ESAT's final data qualifiers in the Data Summary Table. An Evidence Audit was conducted for the Complete Sample Delivery Group File (CSF), and the results were recorded in the Evidence Inventory Checklist.

NOTE: THE FOLLOWING REVIEW NARRATIVE ADDRESSES BOTH CONTRACTUAL ISSUES (BASED ON THE STATEMENT OF WORK) AND TECHNICAL ISSUES (BASED ON THE NATIONAL FUNCTIONAL GUIDELINES). THE ASSESSMENT MADE FOR EACH QC PARAMETER IS SOLELY BASED ON THE TECHNICAL DATA USABILITY, WHICH MAY NOT NECESSARILY BE AFFECTED BY CONTRACTUAL PROBLEMS. THE ASSESSMENTS ARE DEFINED BELOW.

Acceptable = No results were qualified for any problem associated with this QC parameter.

Provisional = Some results were qualified because of problems associated with this QC parameter.

Unusable = All results are unusable because of major problems associated with this QC parameter.

1. Holding Times: Provisional. All sample extractions and analyses met the contractual holding time requirements with two

ORGANIC QA REVIEW
CONTINUATION PAGE

CASE 27273 **SDG** FCX38 **SITE** NETHERY LF **LAB** SWOK

1. Holding Times (continued): exceptions. The extractions of BNA samples FC-X39RE and FC-X50RE exceeded the contractual holding time limit by eight days. Technical holding time criteria have not been established for soil samples. Based on Regional guidelines, the reviewer qualified as estimated all positive hits at concentrations above the SQL's for BNA samples FC-X39RE and FC-X50RE.

2. Tuning/Performance: Acceptable. The BFB and DFTPP analyses met the QC criteria. All Pest/PCB sample analyses met instrument performance guidelines.

3. Calibrations: Acceptable. VOA and BNA target analytes generally met contractual calibration criteria. Some VOA and BNA analytes failed technical %RSD and/or %D calibration criteria but were not detected at concentrations above the SQL's in the associated samples.

Pest/PCB DDT and methoxychlor failed %D and %breakdown calibration criteria on both columns for the ending PEM calibration verifications associated with all initial sample analyses (at 10X dilution). Since data for the initial analyses are not recommended for use, results were not qualified. The calibrations associated with the diluted reanalyses met contractual calibration criteria.

4. Blanks: Provisional. The method, instrument, and storage blanks were contractually compliant. The VOA and Pest/PCB blanks contained no target analytes.

BNA The method blanks contained di-n-butylphthalate and/or bis(2-ethylhexyl)phthalate at concentrations below the CRQL's. The reviewer made the following qualifications because of laboratory contamination.

> The bis(2-ethylhexyl)phthalate concentration (>SQL) for sample FC-X40 was qualified as undetected (U) and should be used as a raised QL.
>
> The bis(2-ethylhexyl)phthalate concentration (>SQL) for sample FC-X38 was flagged "B" to indicate a high bias.

The other laboratory "B"-flagged results below the SQL's should be considered undetected because they were less than 10X the associated method blank values.

ORGANIC QA REVIEW
CONTINUATION PAGE

CASE 27273 **SDG** FCX38 **SITE** NETHERY LF **LAB** SWOK

5. System Monitoring Compounds (SMC's)/Surrogates: Acceptable. SMC and surrogate recoveries met the QC criteria with the following exceptions.

BNA Samples FC-X39 and FC-X50 failed QC criteria for surrogate recovery but the re-extractions, samples FC-X39RE and FC-X50RE, had acceptable surrogate recoveries. Since results for samples FC-X39RE and FC-X50RE are designated for use, no data qualification was necessary.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD): Acceptable. MS/MSD results met QC criteria for precision and %recovery with a few exceptions. The MSD recovery was high for pyrene and the %RPD's were high for acenaphthene, pyrene, and DDT. None of these analytes had concentrations above the SQL's in the unspiked samples, so the reviewer did not qualify the unspiked sample results.

7. Other QC:

Field Duplicates: Acceptable. Field duplicate results were generally consistent.

8. Internal Standards (IS): Acceptable. The IS performance was acceptable for all VOA and BNA samples.

9. Compound Identity (ID)/Quantitation: Provisional. Analytes met the compound identification and quantitation guidelines.

VOA Samples FC-X38 and FC-X51 contained acetone at concentrations above the SQL's. TCL analytes reported at concentrations below the SQL's in some samples included methylene chloride and toluene.

BNA Samples FC-X41 and FC-X42 were diluted up to 4X because of high concentrations of fluoranthene (6,200 μg/Kg and 10,000 μg/Kg, respectively) and pyrene (4,100 μg/Kg and 6,400 μg/Kg, respectively). Many PAH's were reported above the SQL's in samples FC-C39, FC-X40, FC-X41, FC-X42, FC-X43, FC-X48, FC-X49, FC-X50, and FC-X56. Other target compounds reported above the SQL's included carbazole in samples FC-X41 and FC-X42 and bis(2-ethylhexyl)phthalate in sample FC-X38.

The reviewer qualified as estimated all positive results with concentrations above the SQL's for sample FC-X50RE because the

CASE 27273 SDG FCX38 SITE NETHERY LF LAB SWOK

9. Compound ID/Quantitation (continued): concentrations were up to 8X the SQL's, but concentrations for these analytes were below or near the SQL's in the original analysis. This inconsistency can not be explained by the high surrogate recoveries for the original analysis. The laboratory "E"-flagged the Form 1 fluoranthene and pyrene results for sample FC-X50RE, indicating that the associated concentrations were above the calibration range. Since the concentrations actually rounded to the upper calibration limit, the reviewer did not qualify the sample results.

Pest/PCB The SQL's were elevated substantially for all diluted reanalyses because of high dilution (100X). The only analyte reported above the elevated SQL was dieldrin at a concentration of 940 µg/Kg in sample FC-X42. The laboratory omitted the contract-required GC/MS confirmation for this analyte, and reanalysis is recommended. All reported sample results, including those below the SQL's, met compound identification criteria. The laboratory reported an extremely low concentration (less than 10 percent of the SQL) for DDT in sample FC-X56DL. The reviewer raised the low concentration to the SQL and flagged it "U" following the Region 6 guidelines.

10. Performance/Completeness: Acceptable. The data package was complete with some minor omissions and problems requiring resolution (see FAX Record Logs).

In response to CCS and one of two Regional requests, the laboratory has already sent some omitted items and needed corrections. The reviewer exchanged or inserted the following documents in the package: SDG Narrative pages 2 and 3; BNA Form 2 (page 244); Forms 1 and quantitation reports for some BNA samples (pages 333 to 337A, 466 to 470, 530 to 535, 592 to 596, 654 to 659, 720 to 724A, 779 to 783, 1044, 1046, 1162 to 1166, and 1738 to 1742); and Pest/PCB standard data (pages 2171A and 2171B). The resubmission cover pages are included at the beginning of the data package.

11. Overall Assessment: Data are acceptable for all VOA and Pest/PCB samples.

BNA Some data are provisional for samples FC-X38, FC-X39RE, FC-X40, and FC-X50RE because of problems with holding times, laboratory contamination, and compound quantitation.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099

RESUBMITTED DATA REVIEW REPORT

DATE:	10/06/1999	**CASE#:**	27273
		SDG#:	FCX38
TO:	B. Rhotenberry	**LAB:**	SWOK
	(6SF-RA)	**SITE:**	Nethery LF
FROM:	Gene Zhu (LMSG)	**REF:**	TDF # 6-9331A
	ESAT - Region 6		ESAT File # 0-2049
	Page 1 of 1		ESAT Contract No. 68-D6-0005

EFFECTS OF RESUBMITTED INFORMATION ON THE ORIGINAL DATA:

Laboratory response to Region 6 FAX request: (received by ESAT on 10/5/99)

A. BNA

1. The laboratory submitted the requested corrections. Please use the resubmitted pages 333, 334, 337, 337A, 720, 721, 724, 724A, 779, 780, 783, 783A, 1040, 1041, and 1044. The changes in sample result are highlighted on the attached revision of the Data Summary Table for semivolatiles. The BNA portion of the original data review report is unaffected by this resubmission.

2. The laboratory failed to submit a blank page 12 to replace the extra alkane report for BNA sample FC-X40. The reviewer generated one that should replace the originally submitted page 12.

B. Pest/PCB

1. Please use the resubmitted standard analysis data for AR123215C (pages 2171A and 2171B).

2. The laboratory performed the GC/MS analysis that confirmed the dieldrin identification for sample FC-X42. Please use the resubmitted Form I's for samples FC-X42 and FC-X42DL (pages 1936 and 1941). Please also use the submitted GC/MS confirmation data for sample FC-X42 (pages 719A to 719C, 1681A, 1681B, 1702A to 1702D, 1811A, and 1811B).

3&4. The laboratory submitted the communication logs and the raw data that demonstrated matrix problems for the samples in SDG. The submitted raw data indicated that the laboratory performed the 10X diluted sample analyses for all 19 samples in this SDG within one 12 hour sequence on a different instrument prior to contacting the EPA about the matrix problem. These unpaginated data should be used as supporting document for this case. The resubmitted data had no effect on the original data review report.

ORGANIC DATA SUMMARY

Case No.: 27273 | SDG: FCX38 | Reviewer: Mike Fertitta

Laboratory: SWOK | Matrix: Soil | Units: ug/Kg

VOLATILES	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X38	FC-X39	FC-X40	FC-X41	FC-X42	FC-X43	FC-X44
Chloromethane	10U	10U	10U	14U	12U	15U	16U
Bromomethane	10U	10U	10U	14U	12U	15U	16U
Vinyl Chloride	10U	10U	10U	14U	12U	15U	16U
Chloroethane	10U	10U	10U	14U	12U	15U	16U
Methylene Chloride	6QJK	6QJK	3QJK	14U	12U	15U	16U
Acetone	16	10U	10U	14U	12U	15U	16U
Carbon Disulfide	10U	10U	10U	14U	12U	15U	16U
1,1-Dichloroethene	10U	10U	10U	14U	12U	15U	16U
1,1-Dichloroethane	10U	10U	10U	14U	12U	15U	16U
Total 1,2-Dichloroethene	10U	10U	10U	14U	12U	15U	16U
Chloroform	10U	10U	10U	14U	12U	15U	16U
1,2-Dichloroethane	10U	10U	10U	14U	12U	15U	16U
2-Butanone	10U	10U	10U	14U	12U	15U	16U
1,1,1-Trichloroethane	10U	10U	10U	14U	12U	15U	16U
Carbon Tetrachloride	10U	10U	10U	14U	12U	15U	16U
Bromodichloromethane	10U	10U	10U	14U	12U	15U	16U
1,2-Dichloropropane	10U	10U	10U	14U	12U	15U	16U
Cis-1,3-Dichloropropene	10U	10U	10U	14U	12U	15U	16U
Trichloroethene	10U	10U	10U	14U	12U	15U	16U
Dibromochloromethane	10U	10U	10U	14U	12U	15U	16U
1,1,2-Trichloroethane	10U	10U	10U	14U	12U	15U	16U
Benzene	10U	10U	10U	14U	12U	15U	16U
Trans-1,3-Dichloropropene	10U	10U	10U	14U	12U	15U	16U
Bromoform	10U	10U	10U	14U	12U	15U	16U
4-Methyl-2-pentanone	10U	10U	10U	14U	12U	15U	16U
2-Hexanone	10U	10U	10U	14U	12U	15U	16U
Tetrachloroethene	10U	10U	10U	14U	12U	15U	16U
1,1,2,2-Tetrachloroethane	10U	10U	10U	14U	12U	15U	16U
Toluene	1QJK	1QJK	10U	14U	12U	15U	16U
Chlorobenzene	10U	10U	10U	14U	12U	15U	16U
Ethylbenzene	10U	10U	10U	14U	12U	15U	16U
Styrene	10U	10U	10U	14U	12U	15U	16U
Xylene (total)	10U	10U	10U	14U	12U	15U	16U
Sample wt (g) :	5.0	5.0	5.0	5.0	5.0	5.0	5.0
%Moisture :	2	2	2	26	20	33	38
Dilution Factor:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Level:	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Number of TIC's:	2	5	1	0	0	0	1

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273 | SDG: FCX38 | Reviewer: Mike Fertitta

Laboratory: SWOK | Matrix: Soil | Units: ug/Kg

VOLATILES	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X45	FC-X46	FC-X47	FC-X48	FC-X49	FC-X50	FC-X51
Chloromethane	12U	12U	15U	13U	12U	12U	17U
Bromomethane	12U	12U	15U	13U	12U	12U	17U
Vinyl Chloride	12U	12U	15U	13U	12U	12U	17U
Chloroethane	12U	12U	15U	13U	12U	12U	17U
Methylene Chloride	12U	12U	15U	13U	12U	12U	17U
Acetone	12U	12U	15U	13U	12U	12U	52
Carbon Disulfide	12U	12U	15U	13U	12U	12U	17U
1,1-Dichloroethene	12U	12U	15U	13U	12U	12U	17U
1,1-Dichloroethane	12U	12U	15U	13U	12U	12U	17U
Total 1,2-Dichloroethene	12U	12U	15U	13U	12U	12U	17U
Chloroform	12U	12U	15U	13U	12U	12U	17U
1,2-Dichloroethane	12U	12U	15U	13U	12U	12U	17U
2-Butanone	12U	12U	15U	13U	12U	12U	17U
1,1,1-Trichloroethane	12U	12U	15U	13U	12U	12U	17U
Carbon Tetrachloride	12U	12U	15U	13U	12U	12U	17U
Bromodichloromethane	12U	12U	15U	13U	12U	12U	17U
1,2-Dichloropropane	12U	12U	15U	13U	12U	12U	17U
Cis-1,3-Dichloropropene	12U	12U	15U	13U	12U	12U	17U
Trichloroethene	12U	12U	15U	13U	12U	12U	17U
Dibromochloromethane	12U	12U	15U	13U	12U	12U	17U
1,1,2-Trichloroethane	12U	12U	15U	13U	12U	12U	17U
Benzene	12U	12U	15U	13U	12U	12U	17U
Trans-1,3-Dichloropropene	12U	12U	15U	13U	12U	12U	17U
Bromoform	12U	12U	15U	13U	12U	12U	17U
4-Methyl-2-pentanone	12U	12U	15U	13U	12U	12U	17U
2-Hexanone	12U	12U	15U	13U	12U	12U	17U
Tetrachloroethene	12U	12U	15U	13U	12U	12U	17U
1,1,2,2-Tetrachloroethane	12U	12U	15U	13U	12U	12U	17U
Toluene	12U	12U	15U	13U	12U	12U	17U
Chlorobenzene	12U	12U	15U	13U	12U	12U	17U
Ethylbenzene	12U	12U	15U	13U	12U	12U	17U
Styrene	12U	12U	15U	13U	12U	12U	17U
Xylene (total)	12U	12U	15U	13U	12U	12U	17U
Sample wt (g) :	5.0	5.0	5.0	5.0	5.0	5.0	5.0
%Moisture :	16	16	32	22	17	17	42
Dilution Factor:	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Level:	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Number of TIC's:	0	0	0	0	0	0	1

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273 | SDG: FCX38 | Reviewer: Mike Fertitta

Laboratory: SWOK | Matrix: Soil | Units: ug/Kg

VOLATILES	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X52	FC-X53	FC-X54	FC-X55	FC-X56		
Chloromethane	12U	12U	11U	12U	10U		
Bromomethane	12U	12U	11U	12U	10U		
Vinyl Chloride	12U	12U	11U	12U	10U		
Chloroethane	12U	12U	11U	12U	10U		
Methylene Chloride	12U	12U	11U	6QJK	10U		
Acetone	12U	12U	11U	12U	10U		
Carbon Disulfide	12U	12U	11U	12U	10U		
1,1-Dichloroethene	12U	12U	11U	12U	10U		
1,1-Dichloroethane	12U	12U	11U	12U	10U		
Total 1,2-Dichloroethene	12U	12U	11U	12U	10U		
Chloroform	12U	12U	11U	12U	10U		
1,2-Dichloroethane	12U	12U	11U	12U	10U		
2-Butanone	12U	12U	11U	12U	10U		
1,1,1-Trichloroethane	12U	12U	11U	12U	10U		
Carbon Tetrachloride	12U	12U	11U	12U	10U		
Bromodichloromethane	12U	12U	11U	12U	10U		
1,2-Dichloropropane	12U	12U	11U	12U	10U		
Cis-1,3-Dichloropropene	12U	12U	11U	12U	10U		
Trichloroethene	12U	12U	11U	12U	10U		
Dibromochloromethane	12U	12U	11U	12U	10U		
1,1,2-Trichloroethane	12U	12U	11U	12U	10U		
Benzene	12U	12U	11U	12U	10U		
Trans-1,3-Dichloropropene	12U	12U	11U	12U	10U		
Bromoform	12U	12U	11U	12U	10U		
4-Methyl-2-pentanone	12U	12U	11U	12U	10U		
2-Hexanone	12U	12U	11U	12U	10U		
Tetrachloroethene	12U	12U	11U	12U	10U		
1,1,2,2-Tetrachloroethane	12U	12U	11U	12U	10U		
Toluene	12U	12U	11U	12U	10U		
Chlorobenzene	12U	12U	11U	12U	10U		
Ethylbenzene	12U	12U	11U	12U	10U		
Styrene	12U	12U	11U	12U	10U		
Xylene (total)	12U	12U	11U	12U	10U		
Sample wt (g) :	5.0	5.0	5.0	5.0	5.0		
%Moisture :	20	15	9	15	1		
Dilution Factor:	1.0	1.0	1.0	1.0	1.0		
Level:	LOW	LOW	LOW	LOW	LOW		
Number of TIC's:	0	0	1	0	0		

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273 | SDG: FCX38 | Reviewer: Mike Fertitta

Laboratory: SWOK | Matrix: Soil | Units: ug/Kg

SEMIVOLATILES	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X38	FC-X39	FC-X39RE	FC-X40	FC-X41	FC-X41DL	
Phenol	650U	330U *	330U	330U	420U	850U *	
bis(2-Chloroethyl)ether	650U	330U *	330U	330U	420U	850U *	
2-Chlorophenol	650U	330U *	330U	330U	420U	850U *	
1,3-Dichlorobenzene	650U	330U *	330U	330U	420U	850U *	
1,4-Dichlorobenzene	650U	330U *	330U	330U	420U	850U *	
1,2-Dichlorobenzene	650U	330U *	330U	330U	420U	850U *	
2-Methylphenol	650U	330U *	330U	330U	420U	850U *	
2,2'-oxybis(1-chloropropa	650U	160 *	330U	330U	420U	850U *	
4-Methylphenol	650U	330U *	31QJK	330U	420U	850U *	
N-Nitroso-di-n-propylamin	650U	330U *	330U	330U	420U	850U *	
Hexachloroethane	650U	330U *	330U	330U	420U	850U *	
Nitrobenzene	650U	330U *	330U	330U	420U	850U *	
Isophorone	650U	330U *	330U	330U	420U	850U *	
2-Nitrophenol	650U	330U *	330U	330U	420U	850U *	
2,4-Dimethylphenol	650U	330U *	330U	330U	420U	850U *	
bis(2-Chloroethoxy)methan	650U	330U *	330U	330U	420U	850U *	
2,4-Dichlorophenol	650U	330U *	330U	330U	420U	850U *	
1,2,4-Trichlorobenzene	650U	330U *	330U	330U	420U	850U *	
Naphthalene	650U	18 *	330U	16QJK	120QJK	110 *	
4-Chloroaniline	650U	330U *	330U	330U	420U	850U *	
Hexachlorobutadiene	650U	330U *	330U	330U	420U	850U *	
4-Chloro-3-methylphenol	650U	330U *	330U	330U	420U	850U *	
2-Methylnaphthalene	650U	330U *	330U	330U	41QJK	46 *	
Hexachlorocyclopentadiene	650U	330U *	330U	330U	420U	850U *	
2,4,6-Trichlorophenol	650U	330U *	330U	330U	420U	850U *	
2,4,5-Trichlorophenol	1600U	830U *	830U	830U	1100U	2100U *	
2-Chloronaphthalene	650U	330U *	330U	330U	420U	850U *	
2-Nitroaniline	1600U	830U *	830U	830U	1100U	2100U *	
Dimethylphthalate	650U	330U *	330U	330U	420U	850U *	
Acenaphthylene	650U	36 *	330U	34QJK	65QJK	110 *	
2,6-Dinitrotoluene	650U	330U *	330U	330U	420U	850U *	
3-Nitroaniline	1600U	830U *	830U	830U	1100U	2100U *	
Acenaphthene	650U	48 *	36QJK	43QJK	340QJK	330 *	
2,4-Dinitrophenol	1600U	830U *	830U	830U	1100U	2100U *	
4-Nitrophenol	1600U	830U *	830U	830U	1100U	2100U *	
Dibenzofuran	650U	20 *	330U	330U	190QJK	200 *	
2,4-Dinitrotoluene	650U	330U *	330U	330U	420U	850U *	
Diethylphthalate	650U	330U *	330U	330U	420U	850U *	
4-Chlorophenyl-phenylethe	650U	330U *	330U	330U	420U	850U *	
Fluorene	650U	50 *	29QJK	33QJK	320QJK	370 *	
4-Nitroaniline	1600U	830U *	830U	830U	1100U	2100U *	
4,6-Dinitro-2-methylpheno	1600U	830U *	830U	830U	1100U	2100U *	
N-Nitrosodiphenylamine	650U	330U *	330U	330U	420U	850U *	
4-Bromophenyl-phenylether	650U	330U *	330U	330U	420U	850U *	
Hexachlorobenzene	650U	330U *	330U	330U	420U	850U *	

ORGANIC DATA SUMMARY

Case No.: 27273 SDG: FCX38 Reviewer: Mike Fertitta

Laboratory: SWOK Matrix: Soil Units: ug/Kg

SEMIVOLATILES		FLAG		FLAG		FLAG		FLAG		FLAG		FLAG		FLAG
EPA SAMPLE NUMBER:	FC-X38		FC-X39		FC-X39RE		FC-X40		FC-X41		FC-X41DL			
Pentachlorophenol	1600U		830U	*	830U		830U		1100U		2100U	*		
Phenanthrene	270QJK		710	*	410JK		480		3400		3200	*		
Anthracene	71QJK		130	*	96QJK		100QJK		1000		960	*		
Carbazole	60QJK		120	*	73QJK		87QJK		520		500	*		
Di-n-butylphthalate	650U		51	*	330U		330U		420U		110	*		
Fluoranthene	580QJK		1700	*	1200JK		1500		6300	*	6200D			
Pyrene	380QJK		1200	*	1200JK		1100		4100	*	4100D			
Butylbenzylphthalate	650U		330U	*	23QJK		330U		420U		850U	*		
3,3'-Dichlorobenzidine	650U		330U	*	330U		330U		420U		850U	*		
Benzo(a)anthracene	290QJK		800	*	670JK		760		2800		2700	*		
Chrysene	330QJK		880	*	710JK		840		2800		2700	*		
bis(2-Ethylhexyl)phthalat	800 B		250	*	330 U		380U		420U		150	*		
Di-n-octylphthalate	650U		41	*	330U		17QJK		37QJK		850U	*		
Benzo(b)fluoranthene	280QJK		1000	*	700JK		950		2300		2400	*		
Benzo(k)fluoranthene	280QJK		510	*	670JK		520		2100		2000	*		
Benzo(a)pyrene	280QJK		860	*	700JK		860		2600		2600	*		
Indeno(1,2,3-cd)pyrene	230QJK		580	*	500JK		580		1500		1500	*		
Dibenz(a,h)anthracene	110QJK		230	*	220QJK		270QJK		780		780	*		
Benzo(g,h,i)perylene	250QJK		630	*	570JK		630		1500		1500	*		
Sample wt (g) :	31.2		32.4		32.2		33.4		31.5		31.5			
%Moisture :	2		2		2		2		26		26			
Dilution Factor:	2.0		1.0		1.0		1.0		1.0		2.0			
Level:	LOW		LOW		LOW		LOW		LOW		LOW			
Number of TIC's:	30		30		29		30		30		30			

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273 | SDG: FCX38 | Reviewer: Mike Fertitta

Laboratory: SWOK | Matrix: Soil | Units: ug/Kg

SEMIVOLATILES	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X42	FC-X42DL	FC-X43	FC-X44	FC-X45	FC-X46	FC-X47
Phenol	800U	1600U *	480U	490U	360U	350U	450U
bis(2-Chloroethyl)ether	800U	1600U *	480U	490U	360U	350U	450U
2-Chlorophenol	800U	1600U *	480U	490U	360U	350U	450U
1,3-Dichlorobenzene	800U	1600U *	480U	490U	360U	350U	450U
1,4-Dichlorobenzene	800U	1600U *	480U	490U	360U	350U	450U
1,2-Dichlorobenzene	800U	1600U *	480U	490U	360U	350U	450U
2-Methylphenol	800U	1600U *	480U	490U	360U	350U	450U
2,2'-oxybis(1-chloropropa	800U	1600U *	480U	490U	360U	350U	450U
4-Methylphenol	800U	1600U *	480U	490U	360U	350U	450U
N-Nitroso-di-n-propylamin	800U	1600U *	480U	490U	360U	350U	450U
Hexachloroethane	800U	1600U *	480U	490U	360U	350U	450U
Nitrobenzene	800U	1600U *	480U	490U	360U	350U	450U
Isophorone	800U	1600U *	480U	490U	360U	350U	450U
2-Nitrophenol	800U	1600U *	480U	490U	360U	350U	450U
2,4-Dimethylphenol	800U	1600U *	480U	490U	360U	350U	450U
bis(2-Chloroethoxy)methan	800U	1600U *	480U	490U	360U	350U	450U
2,4-Dichlorophenol	800U	1600U *	480U	490U	360U	350U	450U
1,2,4-Trichlorobenzene	800U	1600U *	480U	490U	360U	350U	450U
Naphthalene	330QJK	310 *	480U	490U	360U	350U	450U
4-Chloroaniline	800U	1600U *	480U	490U	360U	350U	450U
Hexachlorobutadiene	800U	1600U *	480U	490U	360U	350U	450U
4-Chloro-3-methylphenol	800U	1600U *	480U	490U	360U	350U	450U
2-Methylnaphthalene	110QJK	100 *	480U	490U	360U	350U	450U
Hexachlorocyclopentadiene	800U	1600U *	480U	490U	360U	350U	450U
2,4,6-Trichlorophenol	800U	1600U *	480U	490U	360U	350U	450U
2,4,5-Trichlorophenol	2000U	4000U *	1200U	1200U	900U	880U	1100U
2-Chloronaphthalene	800U	1600U *	480U	490U	360U	350U	450U
2-Nitroaniline	2000U	4000U *	1200U	1200U	900U	880U	1100U
Dimethylphthalate	800U	1600U *	480U	490U	360U	350U	450U
Acenaphthylene	800U	100 *	52QJK	490U	360U	350U	450U
2,6-Dinitrotoluene	800U	1600U *	480U	490U	360U	350U	450U
3-Nitroaniline	2000U	4000U *	1200U	1200U	900U	880U	1100U
Acenaphthene	610QJK	620 *	62QJK	490U	360U	350U	450U
2,4-Dinitrophenol	2000U	4000U *	1200U	1200U	900U	880U	1100U
4-Nitrophenol	2000U	4000U *	1200U	1200U	900U	880U	1100U
Dibenzofuran	360QJK	380 *	31QJK	490U	360U	350U	450U
2,4-Dinitrotoluene	800U	1600U *	480U	490U	360U	350U	450U
Diethylphthalate	800U	1600U *	480U	490U	360U	350U	450U
4-Chlorophenyl-phenylethe	800U	1600U *	480U	490U	360U	350U	450U
Fluorene	480QJK	490 *	51QJK	490U	360U	350U	450U
4-Nitroaniline	2000U	4000U *	1200U	1200U	900U	880U	1100U
4,6-Dinitro-2-methylpheno	2000U	4000U *	1200U	1200U	900U	880U	1100U
N-Nitrosodiphenylamine	800U	1600U *	480U	490U	360U	350U	450U
4-Bromophenyl-phenylether	800U	1600U *	480U	490U	360U	350U	450U
Hexachlorobenzene	800U	1600U *	480U	490U	360U	350U	450U

ORGANIC DATA SUMMARY

Case No.: 27273 SDG: FCX38 Reviewer: Mike Fertitta

Laboratory: SWOK Matrix: Soil Units: ug/Kg

SEMIVOLATILES		FLAG		FLAG		FLAG		FLAG		FLAG		FLAG		FLAG
EPA SAMPLE NUMBER:	FC-X42		FC-X42DL		FC-X43		FC-X44		FC-X45		FC-X46		FC-X47	
Pentachlorophenol	2000	U	4000	U *	1200	U	1200	U	900	U	880	U	1100	U
Phenanthrene	5400		5500	*	870		490	U	21	QJK	59	QJK	27	QJK
Anthracene	1400		1400	*	160	QJK	490	U	360	U	350	U	450	U
Carbazole	820		860	*	130	QJK	490	U	360	U	19	QJK	450	U
Di-n-butylphthalate	800	U	110	*	480	U	490	U	360	U	350	U	450	U
Fluoranthene	9400	*	10000	D	2000		490	U	32	QJK	280	QJK	66	QJK
Pyrene	6500	*	6400	D	1400		490	U	27	QJK	240	QJK	54	QJK
Butylbenzylphthalate	220	QJK	1600	U *	480	U	490	U	360	U	350	U	450	U
3,3'-Dichlorobenzidine	800	U	1600	U *	480	U	490	U	360	U	350	U	450	U
Benzo(a)anthracene	4900		4800	*	810		490	U	22	QJK	130	QJK	33	QJK
Chrysene	5000		5100	*	970		490	U	21	QJK	150	QJK	53	QJK
bis(2-Ethylhexyl)phthalat	800	U	350	*	480	U	490	U	360	U	350	U	450	U
Di-n-octylphthalate	44	QJK	1600	U *	480	U	490	U	360	U	350	U	450	U
Benzo(b)fluoranthene	4800		4600	*	920		490	U	360	U	130	QJK	65	QJK
Benzo(k)fluoranthene	2700		3200	*	620		490	U	360	U	180	QJK	25	QJK
Benzo(a)pyrene	4400		4500	*	850		490	U	22	QJK	130	QJK	42	QJK
Indeno(1,2,3-cd)pyrene	2600		2700	*	530		490	U	360	U	86	QJK	47	QJK
Dibenz(a,h)anthracene	1400		1200	*	210	QJK	490	U	360	U	46	QJK	450	U
Benzo(g,h,i)perylene	2600		2600	*	580		490	U	22	QJK	97	QJK	52	QJK
Sample wt (g) :	30.9		30.9		31.1		32.5		32.9		33.6		32.0	
%Moisture :	20		20		33		38		16		16		32	
Dilution Factor:	2.0		4.0		1.0		1.0		1.0		1.0		1.0	
Level:	LOW		LOW		LOW		LOW		LOW		LOW		LOW	
Number of TIC's:	30		30		30		30		30		30		28	

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273

Laboratory: SWOK

SDG: FCX38

Matrix: Soil

Reviewer: Mike Fertitta

Units: ug/Kg

SEMIVOLATILES / EPA SAMPLE NUMBER:	FC-X48 FLAG	FC-X49 FLAG	FC-X50 FLAG	FC-X50RE FLAG	FC-X51 FLAG	FC-X52 FLAG	FC-X53 FLAG
Phenol	400U	380U	370U *	370U	1100U	390U	370U
bis(2-Chloroethyl)ether	400U	380U	370U *	370U	1100U	390U	370U
2-Chlorophenol	400U	380U	370U *	370U	1100U	390U	370U
1,3-Dichlorobenzene	400U	380U	370U *	370U	1100U	390U	370U
1,4-Dichlorobenzene	400U	380U	370U *	370U	1100U	390U	370U
1,2-Dichlorobenzene	400U	380U	370U *	370U	1100U	390U	370U
2-Methylphenol	400U	380U	370U *	370U	1100U	390U	370U
2,2'-oxybis(1-chloropropa	400U	380U	370U *	370U	1100U	390U	370U
4-Methylphenol	400U	380U	370U *	370U	1100U	390U	370U
N-Nitroso-di-n-propylamin	400U	380U	370U *	370U	1100U	390U	370U
Hexachloroethane	400U	380U	370U *	370U	1100U	390U	370U
Nitrobenzene	400U	380U	370U *	370U	1100U	390U	370U
Isophorone	400U	380U	370U *	370U	1100U	390U	370U
2-Nitrophenol	400U	380U	370U *	370U	1100U	390U	370U
2,4-Dimethylphenol	400U	380U	370U *	370U	1100U	390U	370U
bis(2-Chloroethoxy)methan	400U	380U	370U *	370U	1100U	390U	370U
2,4-Dichlorophenol	400U	380U	370U *	370U	1100U	390U	370U
1,2,4-Trichlorobenzene	400U	380U	370U *	370U	1100U	390U	370U
Naphthalene	400U	380U	370U *	63QJK	1100U	390U	370U
4-Chloroaniline	400U	380U	370U *	370U	1100U	390U	370U
Hexachlorobutadiene	400U	380U	370U *	370U	1100U	390U	370U
4-Chloro-3-methylphenol	400U	380U	370U *	370U	1100U	390U	370U
2-Methylnaphthalene	400U	380U	370U *	54QJK	1100U	390U	370U
Hexachlorocyclopentadiene	400U	380U	370U *	370U	1100U	390U	370U
2,4,6-Trichlorophenol	400U	380U	370U *	370U	1100U	390U	370U
2,4,5-Trichlorophenol	990U	960U	940U *	920U	2700U	980U	940U
2-Chloronaphthalene	400U	380U	370U *	370U	1100U	390U	370U
2-Nitroaniline	990U	960U	940U *	920U	2700U	980U	940U
Dimethylphthalate	400U	380U	370U *	370U	1100U	390U	370U
Acenaphthylene	400U	380U	370U *	71QJK	1100U	390U	370U
2,6-Dinitrotoluene	400U	380U	370U *	370U	1100U	390U	370U
3-Nitroaniline	990U	960U	940U *	920U	2700U	980U	940U
Acenaphthene	400U	380U	370U *	180QJK	70QJK	390U	370U
2,4-Dinitrophenol	990U	960U	940U *	920U	2700U	980U	940U
4-Nitrophenol	990U	960U	940U *	920U	2700U	980U	940U
Dibenzofuran	400U	380U	370U *	120QJK	1100U	390U	370U
2,4-Dinitrotoluene	400U	380U	370U *	370U	1100U	390U	370U
Diethylphthalate	400U	380U	370U *	370U	1100U	390U	370U
4-Chlorophenyl-phenylethe	400U	380U	370U *	370U	1100U	390U	370U
Fluorene	400U	380U	370U *	160QJK	110QJK	390U	370U
4-Nitroaniline	990U	960U	940U *	920U	2700U	980U	940U
4,6-Dinitro-2-methylpheno	990U	960U	940U *	920U	2700U	980U	940U
N-Nitrosodiphenylamine	400U	380U	370U *	370U	1100U	390U	370U
4-Bromophenyl-phenylether	400U	380U	370U *	370U	1100U	390U	370U
Hexachlorobenzene	400U	380U	370U *	370U	1100U	390U	370U

ORGANIC DATA SUMMARY

Case No.: 27273 | SDG: FCX38 | Reviewer: Mike Fertitta

Laboratory: SWOK | Matrix: Soil | Units: ug/Kg

SEMIVOLATILES	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X48	FC-X49	FC-X50	FC-X50RE	FC-X51	FC-X52	FC-X53
Pentachlorophenol	990U	960U	940U *	920U	2700U	980U	940U
Phenanthrene	150QJK	270QJK	130 *	2200JK	440QJK	390U	370U
Anthracene	22QJK	62QJK	33 *	520JK	130QJK	390U	370U
Carbazole	34QJK	57QJK	29 *	290QJK	1100U	390U	370U
Di-n-butylphthalate	400U	380U	59 *	20QJK	1100U	390U	370U
Fluoranthene	460	850	380 *	3000JK	450QJK	390U	370U
Pyrene	420	770	320 *	3000JK	580QJK	28QJK	370U
Butylbenzylphthalate	400U	380U	370U *	370U	1100U	390U	370U
3,3'-Dichlorobenzidine	400U	380U	370U *	370U	1100U	390U	370U
Benzo(a)anthracene	160QJK	340QJK	220 *	1500JK	260QJK	390U	370U
Chrysene	230QJK	390	280 *	1600JK	250QJK	390U	370U
bis(2-Ethylhexyl)phthalat	400U	380U	170 *	370U	1100U	390U	370U
Di-n-octylphthalate	27QJK	21QJK	370U *	370U	1100U	390U	370U
Benzo(b)fluoranthene	240QJK	320QJK	260 *	1400JK	180QJK	390U	370U
Benzo(k)fluoranthene	240QJK	390	140 *	1000JK	210QJK	390U	370U
Benzo(a)pyrene	200QJK	320QJK	210 *	1300JK	220QJK	390U	370U
Indeno(1,2,3-cd)pyrene	150QJK	240QJK	160 *	820JK	130QJK	390U	370U
Dibenz(a,h)anthracene	63QJK	110QJK	62 *	400JK	73QJK	390U	370U
Benzo(g,h,i)perylene	170QJK	250QJK	160 *	890JK	150QJK	390U	370U
Sample wt (g) :	32.1	31.4	31.9	32.4	31.4	31.8	31.2
%Moisture :	22	17	17	17	42	20	15
Dilution Factor:	1.0	1.0	1.0	1.0	2.0	1.0	1.0
Level:	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Number of TIC's:	30	30	30	30	30	30	30

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273 | SDG: FCX38 | Reviewer: Mike Fertitta

Laboratory: SWOK | Matrix: Soil | Units: ug/Kg

SEMIVOLATILES	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X54	FC-X55	FC-X56				
Phenol	330U	370U	330U				
bis(2-Chloroethyl)ether	330U	370U	330U				
2-Chlorophenol	330U	370U	330U				
1,3-Dichlorobenzene	330U	370U	330U				
1,4-Dichlorobenzene	330U	370U	330U				
1,2-Dichlorobenzene	330U	370U	330U				
2-Methylphenol	330U	370U	330U				
2,2'-oxybis(1-chloropropa	330U	370U	330U				
4-Methylphenol	330U	370U	330U				
N-Nitroso-di-n-propylamin	330U	370U	330U				
Hexachloroethane	330U	370U	330U				
Nitrobenzene	330U	370U	330U				
Isophorone	330U	370U	330U				
2-Nitrophenol	330U	370U	330U				
2,4-Dimethylphenol	330U	370U	330U				
bis(2-Chloroethoxy)methan	330U	370U	330U				
2,4-Dichlorophenol	330U	370U	330U				
1,2,4-Trichlorobenzene	330U	370U	330U				
Naphthalene	330U	370U	330U				
4-Chloroaniline	330U	370U	330U				
Hexachlorobutadiene	330U	370U	330U				
4-Chloro-3-methylphenol	330U	370U	330U				
2-Methylnaphthalene	330U	370U	330U				
Hexachlorocyclopentadiene	330U	370U	330U				
2,4,6-Trichlorophenol	330U	370U	330U				
2,4,5-Trichlorophenol	830U	930U	830U				
2-Chloronaphthalene	330U	370U	330U				
2-Nitroaniline	830U	930U	830U				
Dimethylphthalate	330U	370U	330U				
Acenaphthylene	330U	370U	330U				
2,6-Dinitrotoluene	330U	370U	330U				
3-Nitroaniline	830U	930U	830U				
Acenaphthene	330U	370U	330U				
2,4-Dinitrophenol	830U	930U	830U				
4-Nitrophenol	830U	930U	830U				
Dibenzofuran	330U	370U	330U				
2,4-Dinitrotoluene	330U	370U	330U				
Diethylphthalate	330U	19QJK	330U				
4-Chlorophenyl-phenylethe	330U	370U	330U				
Fluorene	330U	370U	330U				
4-Nitroaniline	830U	930U	830U				
4,6-Dinitro-2-methylpheno	830U	930U	830U				
N-Nitrosodiphenylamine	330U	370U	330U				
4-Bromophenyl-phenylether	330U	370U	330U				
Hexachlorobenzene	330U	370U	330U				

ORGANIC DATA SUMMARY

Case No.: 27273 SDG: FCX38 Reviewer: Mike Fertitta

Laboratory: SWOK Matrix: Soil Units: ug/Kg

SEMIVOLATILES	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X54	FC-X55	FC-X56				
Pentachlorophenol	830U	930U	830U				
Phenanthrene	99QJK	42QJK	120QJK				
Anthracene	18QJK	370U	24QJK				
Carbazole	330U	370U	30QJK				
Di-n-butylphthalate	330U	370U	330U				
Fluoranthene	150QJK	65QJK	280QJK				
Pyrene	230QJK	98QJK	250QJK				
Butylbenzylphthalate	330U	370U	140QJK				
3,3'-Dichlorobenzidine	330U	370U	330U				
Benzo(a)anthracene	100QJK	48QJK	160QJK				
Chrysene	120QJK	66QJK	210QJK				
bis(2-Ethylhexyl)phthalat	330U	370U	330U				
Di-n-octylphthalate	330U	370U	330U				
Benzo(b)fluoranthene	120QJK	59QJK	220QJK				
Benzo(k)fluoranthene	110QJK	73QJK	140QJK				
Benzo(a)pyrene	110QJK	53QJK	180QJK				
Indeno(1,2,3-cd)pyrene	64QJK	43QJK	170QJK				
Dibenz(a,h)anthracene	330U	19QJK	76QJK				
Benzo(g,h,i)perylene	72QJK	50QJK	380				
Sample wt (g) :	33.5	31.4	33.1				
%Moisture :	9	15	1				
Dilution Factor:	1.0	1.0	1.0				
Level:	LOW	LOW	LOW				
Number of TIC's:	30	30	30				

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273

Laboratory: SWOK

SDG: FCX38

Matrix: Soil

Reviewer: Gene Zhu

Units: ug/Kg

PESTICIDES/PCBs EPA SAMPLE NUMBER:	FC-X38	FLAG	FC-X38DL	FLAG	FC-X39	FLAG	FC-X39DL	FLAG	FC-X40	FLAG	FC-X40DL	FLAG	FC-X41	FLAG
alpha-BHC	17U	*	170U		16U	*	160U		17U	*	170U		22U	*
beta-BHC	17U	*	170U		16U	*	160U		17U	*	170U		22U	*
delta-BHC	17U	*	170U		16U	*	160U		17U	*	170U		22U	*
gamma-BHC (Lindane)	17U	*	170U		16U	*	160U		17U	*	170U		22U	*
Heptachlor	3.2	*	170U		16U	*	160U		17U	*	170U		22U	*
Aldrin	17U	*	170U		16U	*	160U		17U	*	170U		22U	*
Heptachlor Epoxide	17U	*	170U		16U	*	160U		17U	*	170U		22U	*
Endosulfan I	17U	*	170U		16U	*	160U		17U	*	170U		22U	*
Dieldrin	16	*	330U		30U	*	300U		33U	*	330U		120	*
4,4'-DDE	33U	*	330U		30U	*	300U		33U	*	330U		44U	*
Endrin	33U	*	330U		30U	*	300U		33U	*	330U		44U	*
Endosulfan II	33U	*	330U		30U	*	300U		33U	*	330U		44U	*
4,4'-DDD	33U	*	330U		30U	*	300U		33U	*	330U		8.4	*
Endosulfan Sulfate	33U	*	330U		30U	*	300U		13	*	330U		44U	*
4,4'-DDT	25	*	330U		30U	*	300U		33U	*	330U		25	*
Methoxychlor	170U	*	1700U		160U	*	1600U		170U	*	1700U		49U	*
Endrin Ketone	33U	*	330U		21	*	300U		17	*	330U		38	*
Endrin Aldehyde	8.0	*	330U		30U	*	300U		33U	*	330U		5.4	*
alpha-Chlordane	19	*	170U		16U	*	160U		17U	*	170U		22	*
gamma-Chlordane	24	*	170U		16U	*	160U		17U	*	170U		24	*
Toxaphene	1700U	*	17000U		1600U	*	16000U		1700U	*	17000U		2200U	*
Aroclor-1016	330U	*	3300U		300U	*	3000U		330U	*	3300U		440U	*
Aroclor-1221	670U	*	6700U		620U	*	6200U		670U	*	6700U		890U	*
Aroclor-1232	330U	*	3300U		300U	*	3000U		330U	*	3300U		440U	*
Aroclor-1242	330U	*	3300U		300U	*	3000U		330U	*	3300U		440U	*
Aroclor-1248	330U	*	3300U		300U	*	3000U		330U	*	3300U		440U	*
Aroclor-1254	330U	*	3300U		300U	*	3000U		330U	*	3300U		440U	*
Aroclor-1260	330U	*	3300U		300U	*	3000U		330U	*	3300U		440U	*
Sample wt (g) :	30.7		30.7		33.2		33.2		30.6		30.6		30.6	
%Moisture :	2		2		2		2		2		2		26	
Dilution Factor:	10.0		100.0		10.0		100.0		10.0		100.0		10.0	

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273

Laboratory: SWOK

SDG: FCX38

Matrix: Soil

Reviewer: Gene Zhu

Units: ug/Kg

PESTICIDES/PCBs	FC-X41DL FLAG	FC-X42 FLAG	FC-X42DL FLAG	FC-X43 FLAG	FC-X43DL FLAG	FC-X44 FLAG	FC-X44DL FLAG
EPA SAMPLE NUMBER:	FC-X41DL	FC-X42	FC-X42DL	FC-X43	FC-X43DL	FC-X44	FC-X44DL
alpha-BHC	220U	19U *	190U	24U *	240U	26U *	260U
beta-BHC	220U	19U *	190U	24U *	240U	26U *	260U
delta-BHC	220U	19U *	190U	24U *	240U	26U *	260U
gamma-BHC (Lindane)	220U	19U *	190U	24U *	240U	26U *	260U
Heptachlor	220U	19U *	190U	24U *	240U	26U *	260U
Aldrin	220U	19U *	190U	24U *	240U	26U *	260U
Heptachlor Epoxide	220U	19U *	190U	24U *	240U	26U *	260U
Endosulfan I	220U	19U *	190U	24U *	240U	26U *	260U
Dieldrin	150QJK	850 *	940	160 *	200QJK	51U *	510U
4,4'-DDE	440U	37U *	370U	21 *	460U	51U *	510U
Endrin	440U	37U *	370U	46U *	460U	51U *	510U
Endosulfan II	440U	37U *	370U	46U *	460U	51U *	510U
4,4'-DDD	440U	37U *	370U	46U *	460U	51U *	510U
ndosulfan Sulfate	440U	37U *	370U	46U *	460U	51U *	510U
4,4'-DDT	440U	37U *	370U	29 *	120JQ	51U *	510U
Methoxychlor	2200U	190U *	1900U	240U *	2400U	260U *	2600U
Endrin Ketone	440U	54 *	37QJK	46U *	460U	51U *	510U
Endrin Aldehyde	440U	37U *	370U	46U *	460U	51U *	510U
alpha-Chlordane	220U	36 *	94QJK	120 *	130JQ	26U *	260U
gamma-Chlordane	220U	38 *	73QJK	120 *	150JQ	26U *	260U
Toxaphene	22000U	1900U *	19000U	2400U *	24000U	2600U *	26000U
Aroclor-1016	4400U	370U *	3700U	460U *	4600U	510U *	5100U
Aroclor-1221	8900U	750U *	7500U	930U *	9300U	1000U *	10000U
Aroclor-1232	4400U	370U *	3700U	460U *	4600U	510U *	5100U
Aroclor-1242	4400U	370U *	3700U	460U *	4600U	510U *	5100U
Aroclor-1248	4400U	370U *	3700U	460U *	4600U	510U *	5100U
Aroclor-1254	4400U	370U *	3700U	460U *	4600U	510U *	5100U
Aroclor-1260	4400U	370U *	3700U	460U *	4600U	510U *	5100U
Sample wt (g) :	30.6	33.4	33.4	32.1	32.1	31.4	31.4
%Moisture :	26	20	20	33	33	38	38
Dilution Factor:	100.0	10.0	100.0	10.0	100.0	10.0	100.0

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273 SDG: FCX38 Reviewer: Gene Zhu

Laboratory: SWOK Matrix: Soil Units: ug/Kg

PESTICIDES/PCBs	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X45	FC-X45DL	FC-X46	FC-X46DL	FC-X47	FC-X47DL	FC-X48
alpha-BHC	19U *	190U	18U *	180U	24U *	240U	20U *
beta-BHC	19U *	190U	18U *	180U	24U *	240U	20U *
delta-BHC	19U *	190U	18U *	180U	24U *	240U	20U *
gamma-BHC (Lindane)	19U *	190U	18U *	180U	24U *	240U	20U *
Heptachlor	19U *	190U	18U *	180U	24U *	240U	20U *
Aldrin	19U *	190U	18U *	180U	24U *	240U	20U *
Heptachlor Epoxide	19U *	190U	18U *	180U	24U *	240U	20U *
Endosulfan I	19U *	190U	18U *	180U	24U *	240U	20U *
Dieldrin	36U *	360U	35U *	350U	46U *	460U	39U *
4,4'-DDE	36U *	360U	35U *	350U	46U *	460U	39U *
Endrin	36U *	360U	35U *	350U	46U *	460U	39U *
Endosulfan II	36U *	360U	35U *	350U	46U *	460U	39U *
4,4'-DDD	36U *	360U	35U *	350U	46U *	460U	39U *
Endosulfan Sulfate	36U *	360U	35U *	350U	46U *	460U	39U *
4,4'-DDT	36U *	360U	35U *	350U	46U *	460U	39U *
Methoxychlor	190U *	1900U	180U *	1800U	240U *	2400U	200U *
Endrin Ketone	36U *	360U	35U *	350U	46U *	460U	39U *
Endrin Aldehyde	36U *	360U	35U *	350U	46U *	460U	5.0 *
alpha-Chlordane	19U *	190U	18U *	180U	24U *	240U	20U *
gamma-Chlordane	19U *	190U	18U *	180U	24U *	240U	20U *
Toxaphene	1900U *	19000U	1800U *	18000U	2400U *	24000U	2000U *
Aroclor-1016	360U *	3600U	350U *	3500U	460U *	4600U	390U *
Aroclor-1221	740U *	7400U	720U *	7200U	930U *	9300U	800U *
Aroclor-1232	360U *	3600U	350U *	3500U	460U *	4600U	390U *
Aroclor-1242	360U *	3600U	350U *	3500U	460U *	4600U	390U *
Aroclor-1248	360U *	3600U	350U *	3500U	460U *	4600U	390U *
Aroclor-1254	360U *	3600U	350U *	3500U	460U *	4600U	390U *
Aroclor-1260	360U *	3600U	350U *	3500U	460U *	4600U	390U *
Sample wt (g) :	32.4	32.4	33.2	33.2	31.9	31.9	32.2
%Moisture :	16	16	16	16	32	32	22
Dilution Factor:	10.0	100.0	10.0	100.0	10.0	100.0	10.0

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273 SDG: FCX38 Reviewer: Gene Zhu

Laboratory: SWOK Matrix: Soil Units: ug/Kg

PESTICIDES/PCBs	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X48DL	FC-X49	FC-X49DL	FC-X50	FC-X50DL	FC-X51	FC-X51DL
alpha-BHC	200U	19U *	190U	19U *	190U	29U *	290U
beta-BHC	200U	19U *	190U	19U *	190U	29U *	290U
delta-BHC	200U	19U *	190U	19U *	190U	29U *	290U
gamma-BHC (Lindane)	200U	19U *	190U	19U *	190U	29U *	290U
Heptachlor	200U	19U *	190U	19U *	190U	29U *	290U
Aldrin	200U	19U *	190U	19U *	190U	29U *	290U
Heptachlor Epoxide	200U	19U *	190U	19U *	190U	29U *	290U
Endosulfan I	200U	19U *	190U	19U *	190U	29U *	290U
Dieldrin	390U	38U *	380U	38U *	380U	56U *	560U
4,4'-DDE	390U	38U *	380U	38U *	380U	56U *	560U
Endrin	390U	38U *	380U	38U *	380U	56U *	560U
Endosulfan II	390U	38U *	380U	38U *	380U	56U *	560U
4,4'-DDD	390U	38U *	380U	38U *	380U	56U *	560U
Endosulfan Sulfate	390U	38U *	380U	38U *	380U	56U *	560U
4,4'-DDT	390U	4.1 *	380U	38U *	380U	56U *	560U
Methoxychlor	2000U	190U *	1900U	190U *	1900U	290U *	2900U
Endrin Ketone	390U	38U *	380U	38U *	380U	6.6 *	560U
Endrin Aldehyde	390U	38U *	380U	38U *	380U	56U *	560U
alpha-Chlordane	200U	19U *	190U	19U *	190U	29U *	290U
gamma-Chlordane	200U	19U *	190U	19U *	190U	29U *	290U
Toxaphene	20000U	1900U *	19000U	1900U *	19000U	2900U *	29000U
Aroclor-1016	3900U	380U *	3800U	380U *	3800U	560U *	5600U
Aroclor-1221	8000U	760U *	7600U	760U *	7600U	1100U *	11000U
Aroclor-1232	3900U	380U *	3800U	380U *	3800U	560U *	5600U
Aroclor-1242	3900U	380U *	3800U	380U *	3800U	560U *	5600U
Aroclor-1248	3900U	380U *	3800U	380U *	3800U	560U *	5600U
Aroclor-1254	3900U	380U *	3800U	380U *	3800U	560U *	5600U
Aroclor-1260	3900U	380U *	3800U	380U *	3800U	560U *	5600U
Sample wt (g) :	32.2	31.7	31.7	31.7	31.7	30.2	30.2
%Moisture :	22	17	17	17	17	42	42
Dilution Factor:	100.0	10.0	100.0	10.0	100.0	10.0	100.0

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273 SDG: FCX38 Reviewer: Gene Zhu

Laboratory: SWOK Matrix: Soil Units: ug/Kg

PESTICIDES/PCBs	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X52	FC-X52DL	FC-X53	FC-X53DL	FC-X54	FC-X54DL	FC-X55
alpha-BHC	20U *	200U	20U *	200U	18U *	180U	18U *
beta-BHC	20U *	200U	20U *	200U	18U *	180U	18U *
delta-BHC	20U *	200U	20U *	200U	18U *	180U	18U *
gamma-BHC (Lindane)	20U *	200U	20U *	200U	18U *	180U	18U *
Heptachlor	20U *	200U	20U *	200U	18U *	180U	18U *
Aldrin	20U *	200U	20U *	200U	18U *	180U	18U *
Heptachlor Epoxide	20U *	200U	20U *	200U	18U *	180U	18U *
Endosulfan I	20U *	200U	20U *	200U	18U *	180U	18U *
Dieldrin	40U *	400U	38U *	380U	8.6 *	340U	36U *
4,4'-DDE	40U *	400U	38U *	380U	34U *	340U	36U *
Endrin	40U *	400U	38U *	380U	34U *	340U	36U *
Endosulfan II	40U *	400U	38U *	380U	34U *	340U	36U *
4,4'-DDD	40U *	400U	38U *	380U	34U *	340U	36U *
Endosulfan Sulfate	40U *	400U	38U *	380U	34U *	340U	36U *
4,4'-DDT	15 *	400U	38U *	380U	34U *	340U	36U *
Methoxychlor	200U *	2000U	200U *	2000U	180U *	1800U	180U *
Endrin Ketone	40U *	400U	38U *	380U	34U *	340U	36U *
Endrin Aldehyde	40U *	400U	38U *	380U	34U *	340U	36U *
alpha-Chlordane	20U *	200U	20U *	200U	18U *	180U	18U *
gamma-Chlordane	20U *	200U	20U *	200U	18U *	180U	18U *
Toxaphene	2000U *	20000U	2000U *	20000U	1800U *	18000U	1800U *
Aroclor-1016	400U *	4000U	380U *	3800U	340U *	3400U	360U *
Aroclor-1221	810U *	8100U	770U *	7700U	690U *	6900U	730U *
Aroclor-1232	400U *	4000U	380U *	3800U	340U *	3400U	360U *
Aroclor-1242	400U *	4000U	380U *	3800U	340U *	3400U	360U *
Aroclor-1248	400U *	4000U	380U *	3800U	340U *	3400U	360U *
Aroclor-1254	400U *	4000U	380U *	3800U	340U *	3400U	360U *
Aroclor-1260	400U *	4000U	380U *	3800U	340U *	3400U	360U *
Sample wt (g) :	31.0	31.0	30.6	30.6	31.8	31.8	32.3
%Moisture :	20	20	15	15	9	9	15
Dilution Factor:	10.0	100.0	10.0	100.0	10.0	100.0	10.0

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 27273 SDG: FCX38 Reviewer: Gene Zhu

Laboratory: SWOK Matrix: Soil Units: ug/Kg

PESTICIDES/PCBs	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FC-X55DL	FC-X56	FC-X56DL				
alpha-BHC	180U	15U *	150U				
beta-BHC	180U	15U *	150U				
delta-BHC	180U	15U *	150U				
gamma-BHC (Lindane)	180U	15U *	150U				
Heptachlor	180U	15U *	150U				
Aldrin	180U	15U *	150U				
Heptachlor Epoxide	180U	15U *	150U				
Endosulfan I	180U	15U *	150U				
Dieldrin	360U	14 *	36QJK				
4,4'-DDE	360U	29U *	290U				
Endrin	360U	29U *	290U				
Endosulfan II	360U	29U *	290U				
4,4'-DDD	360U	29U *	290U				
Endosulfan Sulfate	360U	29U *	290U				
4,4'-DDT	360U	8.9 *	290U				
Methoxychlor	1800U	23 *	1500U				
Endrin Ketone	360U	29U *	290U				
Endrin Aldehyde	360U	21 *	290U				
alpha-Chlordane	180U	6.5 *	150U				
gamma-Chlordane	180U	15U *	150U				
Toxaphene	18000U	1500U *	15000U				
Aroclor-1016	3600U	290U *	2900U				
Aroclor-1221	7300U	600U *	6000U				
Aroclor-1232	3600U	290U *	2900U				
Aroclor-1242	3600U	290U *	2900U				
Aroclor-1248	3600U	290U *	2900U				
Aroclor-1254	3600U	290U *	2900U				
Aroclor-1260	3600U	290U *	2900U				
Sample wt (g) :	32.3	34.0	34.0				
%Moisture :	15	1	1				
Dilution Factor:	100.0	10.0	100.0				

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 27273	SITE Nethery Landfill
LABORATORY DATAC	NO. OF SAMPLES 19
CONTRACT# 68-D5-0133	MATRIX soil
SDG# MFJS80	REVIEWER (IF NOT ESD) ESAT
SOW# ILM04.0	REVIEWER'S NAME Sonya Meekins
ACCT#950102DJN64 SF#50102DZZ	COMPLETION DATE September 17, 1999

SAMPLE NO.					
	MFJ-S80	MFJ-S84	MFJ-S88	MFJ-S92	MFJ-S96
	MFJ-S81	MFJ-S85	MFJ-S89	MFJ-S93	MFJ-S97
	MFJ-S82	MFJ-S86	MFJ-S90	MFJ-S94	MFJ-S98
	MFJ-S83	MFJ-S87	MFJ-S91	MFJ-S95	

DATA ASSESSMENT SUMMARY

	ICP	HG
1. HOLDING TIMES	O	O
2. CALIBRATIONS	O	O
3. BLANKS	M	O
4. MATRIX SPIKES	M	O
5. DUPLICATE ANALYSIS	M	O
6. ICP QC	M	
7. FAA QC		
8. LCS	O	O
9. SAMPLE VERIFICATION	O	O
10. OTHER QC	M	O
11. OVERALL ASSESSMENT	M	O

O = Data had no problems.
M = Data qualified because of major or minor problems.
Z = Data unacceptable.
N/A= Not applicable

ACTION ITEMS: The laboratory failed to meet the turnaround time requirement.

AREAS OF CONCERN: The laboratory failed to enclose the sample tags in a plastic bag. Laboratory blank concentrations affected some cadmium, chromium, copper, nickel, vanadium, and sodium sample results. Matrix spike recoveries were below 75 percent for antimony, silver, and zinc. The lead and zinc laboratory duplicate differences were above 35 percent. Coefficents of variation were greater than 20 percent for 18 antimony, 9 cadmium, 1 cobalt, 1 copper, and 12 nickel analyses. Field duplicate copper results were inconsistent.

NOTABLE PERFORMANCE:

COMMENTS/CLARIFICATIONS
REGION 6 CLP QA REVIEW

Case 27273 **SDG** MFJS80 **Site** Nethery Landfill **Lab** DATAC

COMMENTS: The package consisted of data for 19 soil samples for total metals analysis by ILM04.0. The sampler designated samples MFJ-S81/MFJ-S82 and MFJ-S90/MFJ-S91 as field duplicate pairs and samples MFJ-S80 and MFJ-S88 as the QC samples. Although both QC samples were prepared in the same batch, the QC problems demonstrated by one sample were not confirmed by the other sample. In the reviewers opinion, neither of these two designated QC samples should be used to characterize the entire SDG. Therefore, qualifications resulting from the QC problems were applied only to the QC samples. The reviewer noted the following contractually noncompliant item.

- The laboratory failed to enclose the sample tags in a clear plastic bag.
- The laboratory submitted the package 4 working days late for the 14-day turnaround time.

Fifty-one percent of the reported results were above the CRDL's. Some results were qualified because of problems with blank concentrations, matrix spike recoveries, laboratory duplicate differences, inconsistent instrument readings, and field duplicate differences. The technical usability of all reported results is indicated in the Data Summary Table (DST).

NOTE: THE FOLLOWING REVIEW NARRATIVE ADDRESSES BOTH CONTRACTUAL ISSUES (BASED ON THE STATEMENT OF WORK) AND TECHNICAL ISSUES (BASED ON THE NATIONAL FUNCTIONAL GUIDELINES). THE ASSESSMENT MADE FOR EACH QC PARAMETER IS SOLELY BASED ON THE TECHNICAL DATA USABILITY, WHICH MAY NOT NECESSARILY BE AFFECTED BY CONTRACTUAL PROBLEMS. THE ASSESSMENTS ARE DEFINED BELOW.

Acceptable	=	No results were qualified for any problems associated with this QC parameter.
Provisional	=	Some results were qualified because of problems associated with this QC parameter.
Unusable	=	All results are unusable because of major problems associated with this QC parameter.

1. **Holding Times:** Acceptable. All samples met contractual holding time criteria. Technical holding time criteria have not yet been established for soil samples. The laboratory reported a cooler temperature of 25.0°C, which is above the required 4°C (± 2°C) limit for soil samples. Without established guidelines from the Agency, the reviewer can not assess the effect of the elevated shipping temperature on the sample results.

2. **Calibrations:** Acceptable. All calibrations met contractual requirements. The CRDL standard results indicated that instrument performance near the CRDL's was acceptable.

Case 27273 **SDG** MFJS80 **Site** Nethery Landfill **Lab** DATAC

3. **Blanks:** Provisional. Preparation and calibration blanks met contractual requirements although the laboratory reported 13 analytes in the blanks. The cadmium result below the CRDL for sample MFJ-S98 is flagged "J" on the DST with no bias indication because the associated laboratory blanks had positive as well as negative readings. The reviewer made the following qualifications because of laboratory blank concentrations.

   The cadmium result for sample MFJ-S91 and the chromium results for samples MFJ-S88 and MFJ-S93 are qualified as undetected.

   The copper results for samples MFJ-S92, MFJ-S93, MFJ-S94, and MFJ-S95; the sodium results for samples MFJ-S92 and MFJ-S98; and the vanadium result for sample MFJ-S93 are qualified as undetected.

   The chromium results for samples MFJ-S87 and MFJ-S92 and the nickel result for sample MFJ-S98 are qualified as estimated and biased low.

4. **Pre-digestion Matrix Spike Recovery:** Provisional. The laboratory reported matrix spike recoveries below the QC limits for antimony in QC sample MFJ-S80 and silver and zinc in QC sample MFJ-S88. As a result, the reviewer qualified the antimony result for sample MFJ-S80 and the silver and zinc results for sample MFJ-S88 as estimated and biased low.

5. **Duplicate Analysis:** Provisional. The reviewer qualified as estimated the lead and zinc results for sample MFJ-S88 because the associated laboratory duplicate difference failed to meet technical QC criteria. The manganese laboratory duplicate difference for sample MFJ-S88 only marginally exceeded the technical QC limit, so the reviewer did not qualify the associated manganese result.

6. **ICP Quality Control:**

   Serial Dilution: Acceptable. The laboratory performed serial dilution on sample MFJ-S80 with four of the analytes (arsenic, lead, selenium, and thallium) on one instrument and the others on another instrument. However, the validity of the arsenic, lead, selenium, and thallium results is questionable based on the available data. Since an additional serial dilution analysis was performed on sample MFJ-S88 solely for these four analytes, the results from the additional analysis were used to evaluate the serial dilution performance for arsenic, lead, selenium, and thallium. All analytes met the acceptance criteria for serial dilution differences.

INORGANIC QA REVIEW
CONTINUATION PAGE

Case 27273 **SDG** MFJS80 **Site** Nethery Landfill **Lab** DATAC

6. **ICP Quality Control, continued:**

   Interference Check Sample: Acceptable. Acceptable ICS results indicated satisfactory interelement and background correction.

   Coefficient of Variation: Provisional. The reviewer qualified the following results as estimated because replicate ICP readings were inconsistent:

   all antimony results except for sample MFJ-S88;

   the cadmium results for samples MFJ-S83, MFJ-S85, MFJ-S86, MFJ-S87, MFJ-S88, MFJ-S89, MFJ-S91, MFJ-S95, and MFJ-S98;

   the cobalt result for sample MFJ-S91;

   the copper result for sample MFJ-S86; and

   the nickel results for samples MFJ-S80, MFJ-S81, MFJ-S83, MFJ-S85, MFJ-S86, MFJ-S89, MFJ-S92, MFJ-S93, MFJ-S94, MFJ-S95, MFJ-S97, and MFJ-S98.

7. **Furnace Atomic Absorption Quality Control:** Not Applicable.

8. **Laboratory Control Sample:** Acceptable. Acceptable LCS results indicated satisfactory sample preparation and analysis.

9. **Sample Verification:** Acceptable. The laboratory correctly reported all field sample results. The reviewer detected a few minor reporting errors that did not affect sample results, and the laboratory was contacted for correction (see FAX Record Log).

10. **Other QC:**

    Field Duplicate: Provisional. The reviewer qualified as estimated the copper result for field duplicate samples MFJ-S81 and MFJ-S82 because they had inconsistent concentrations. Field duplicate differences were acceptable for samples MFJ-S90 and MFJ-S91.

11. **Overall Assessment:** Sample result qualifications are summarized below.

    The reviewer qualified one cadmium, four chromium, four copper, one nickel, one vanadium, and two sodium results because of laboratory blank effects.

INORGANIC DATA SUMMARY

Case No.: 27273 | SDG: MFJS80 | Reviewer: S. Meekins

Laboratory: DATAC | Matrix: Soil | Units: MG/KG

EPA TR #=>	MFJ-S80	FLAG	MFJ-S81	FLAG	MFJ-S82	FLAG	MFJ-S83	FLAG	MFJ-S84	FLAG	MFJ-S85	FLAG	MFJ-S86	FLAG
Aluminum	12200		5180		5370		11900		10800		9890		5830	
Antimony	10.7	UJL	10.7	UJK	10.7	UJK	14.5	UJK	14.9	UJK	14.5	UJK	16.8	UJK
Arsenic	4.5		4.2		3.1		5.2		7.2		4.8		4.4	
Barium	106		37.5	Q	37.9	Q	80.2		74.0		139		43.1	Q
Beryllium	0.60	Q	0.06	U	0.06	U	0.08	U	0.21	Q	0.08	U	0.10	U
Cadmium	0.61	U	0.61	U	0.61	U	0.96	QJL	0.85	U	0.82	UJK	0.96	UJK
Calcium	52700		77300		90400		71400		125000		119000		86700	
Chromium	16.0		11.5		10.2		18.5		14.9		18.0		13.9	
Cobalt	7.1	Q	6.1	Q	5.2	Q	6.4	Q	5.9	Q	4.4	Q	4.7	U
Copper	13.7		7700	JK	9.9	JK	9.9		10.5		15.4		7.4	QJK
Iron	13100		11800		8080		13900		14000		10700		19300	
Lead	65.0		11.7		18.8		31.0		36.8		280		16.6	
Magnesium	2430		1470		1520		2460		2550		2250		1400	Q
Manganese	357		256		245		398		331		465		551	
Mercury	0.05	U	0.05	U	0.05	U	0.07	U	0.07	U	0.18		0.08	U
Nickel	11.6	JK	12.5	JK	10.8		13.3	JK	7.2	U	18.3	JK	12.5	QJK
Potassium	1330		757	Q	904	Q	1460		1530		1200	Q	1050	Q
Selenium	0.35	U	0.34	U	0.34	U	0.47	U	0.48	U	0.47	U	0.54	U
Silver	0.87	U	0.87	U	0.87	U	1.2	U	1.2	U	1.2	U	1.4	U
Sodium	224	Q	171	Q	220	Q	173	Q	480	Q	335	Q	218	Q
Thallium	0.49	U	0.49	U	0.49	U	0.66	U	0.68	U	0.66	U	0.77	U
Vanadium	28.3		19.2		14.7		32.4		31.1		25.8		24.1	
Zinc	72.8		47.6		54.0		63.2		75.2		244		42.4	
% Solids	98.3		98.9		98.6		72.7		70.6		72.9		62.7	

INORGANIC DATA SUMMARY

Case No.: 27273 SDG: MFJS80 Reviewer: S. Meekins

Laboratory: DATAC Matrix: Soil Units: MG/KG

EPA TR #=>	MFJ-S87	FLAG	MFJ-S88	FLAG	MFJ-S89	FLAG	MFJ-S90	FLAG	MFJ-S91	FLAG	MFJ-S92	FLAG	MFJ-S93	FLAG
Aluminum	2520		3430		31300		8500		12400		1530		1120	
Antimony	12.6	UJK	13.8	U	15.0	UJK	14.5	UJK	13.4	UJK	12.6	UJK	13.5	UJK
Arsenic	5.1		5.0		7.3		4.3		4.9		4.5		1.2	Q
Barium	11.4	Q	27.7	Q	136		71.8		70.8		33.2	Q	54.4	
Beryllium	0.07	U	0.08	U	1.5		0.62	Q	0.67	Q	0.07	U	0.11	Q
Cadmium	1.1	QJK	0.78	UJK	0.85	UJK	0.83	U	0.89	UBJK	0.72	U	0.77	U
Calcium	54400		73300		59800		75600		63700		79300		66800	
Chromium	6.9	JL	6.5	UB	39.8		14.5		19.2		7.9	JL	3.6	UB
Cobalt	6.7	Q	6.1	Q	9.2	Q	7.0	Q	11.9	QJK	8.4	Q	3.8	U
Copper	9.6		6.5	Q	17.8		9.9		12.1		3.3	UB	4.5	UB
Iron	13400		8170		25800		13000		14300		15300		2990	
Lead	12.5		41.3	JK	57.0		18.5		42.0		54.6		3.9	
Magnesium	679	Q	1830		4910		1820		2180		587	Q	790	Q
Manganese	137		238		405		360		445		404		342	
Mercury	0.06	U	0.07	U	0.07	U	0.07	U	0.06	U	0.06	U	0.06	U
Nickel	6.1	U	8.0	Q	25.0	JK	7.0	U	19.1		8.3	QJK	6.5	UJK
Potassium	398	Q	363	Q	4740		1310	Q	1700		201	Q	238	Q
Selenium	0.41	U	0.44	U	0.48	U	0.49	Q	0.43	U	0.41	U	0.43	U
Silver	1.0	U	1.1	UJL	1.2	U	1.2	U	1.1	U	1.0	U	1.1	U
Sodium	142	Q	168	Q	369	Q	166	Q	151	Q	74.7	UB	173	Q
Thallium	0.57	U	0.63	U	0.68	U	0.66	U	0.61	U	0.58	U	0.61	U
Vanadium	14.1		21.7		59.3		23.1		29.8		18.7		4.5	UB
Zinc	22.9		121	JL	115		73.3		167		122		31.8	
% Solids	83.5		76.6		70.3		72.5		78.5		83.4		78.2	

INORGANIC DATA SUMMARY

Case No.: 27273 SDG: MFJS80 Reviewer: S. Meekins

Laboratory: DATAC Matrix: Soil Units: MG/KG

EPA TR #=>	MFJ-S94	FLAG	MFJ-S95	FLAG	MFJ-S96	FLAG	MFJ-S97	FLAG	MFJ-S98	FLAG		FLAG		FLAG
Aluminum	5370		6060		5820		14800		4950					
Antimony	14.8	UJK	12.9	UJK	11.8	UJK	11.6	UJK	12.2	UJK				
Arsenic	1.5	Q	3.0		3.7		4.3		4.8					
Barium	42.0	Q	34.4	Q	47.8		61.9		52.7					
Beryllium	0.13	Q	0.09	Q	0.28	Q	0.69	Q	0.13	Q				
Cadmium	0.84	U	0.73	UJK	0.67	U	0.66	U	0.81	QJK				
Calcium	32200		31600		83600		120000		12700					
Chromium	11.0		9.9		10.1		20.7		22.2					
Cobalt	5.9	Q	4.0	Q	4.7	Q	7.7	Q	5.9	Q				
Copper	4.6	UB	5.8	UB	9.7		14.8		12.5					
Iron	6280		7880		9140		13700		9270					
Lead	10.7		8.1		55.0		18.6		748					
Magnesium	1020	Q	1360		1290		3110		754	Q				
Manganese	125		145		828		621		240					
Mercury	0.07	U	0.06	U	0.06	U	0.06	U	0.06	U				
Nickel	7.4	QJK	10.8	JK	10.8		11.6	JK	16.5	JL				
Potassium	1100	Q	911	Q	900	Q	2430		1000	Q				
Selenium	0.48	U	0.42	U	0.38	U	0.37	U	0.39	U				
Silver	1.2	U	1.1	U	0.96	U	0.95	U	1.0	U				
Sodium	139	Q	125	Q	246	Q	364	Q	45.5	UB				
Thallium	0.68	U	0.59	U	0.54	U	0.53	U	0.56	U				
Vanadium	12.0	Q	15.5		17.1		32.4		14.4					
Zinc	65.9		89.7		46.8		76.1		140					
% Solids	71.1		81.8		89.7		90.7		86.2					

Reference 21

SITE INSPECTION WORK PLAN
FOR
NETHERY LANDFILL
DALLAS, DALLAS COUNTY, TEXAS

July 19,1999

Prepared for:

Henry Thompson Jr.
Project Officer
Response and Prevention Branch
EPA Region 6

Contract Number 68-W6-0013

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

1.0 INTRODUCTION

The Superfund Technical Assessment and Response Team (START) was tasked by the U.S. Environmental Protection Agency (EPA) under Technical Directive Document (TDD) S06-99-03-0001 to conduct a Site Inspection (SI) for the Nethery Landfill in Dallas, Dallas County, Texas.

1.1 SITE INSPECTION OBJECTIVES

The SI is the initial sampling stage of the site assessment process. The SI characterizes the site through the Hazard Ranking System (HRS) documentation and evaluates the site for imminent and substantial endangerment (ISE) conditions and removal potential. The SI includes target data collection, analytical data generated from collection of environmental samples, and an HRS PREscore. Information obtained during the SI supports the management decision of whether the site warrents additional removal action, proceeds to an Expanded Site Inspection (ESI) or to an HRS scoring package for proposal to the National Priorities List (NPL), or receives the classification of No Further Remedial Action Planned (NFRAP) under the Superfund Amendments and Reauthorization Act (SARA).

1.2 SITE DESCRIPTION AND OPERATIONAL HISTORY

The Nethery landfill is located at 500 Deepwood Street in Dallas, Dallas County, Texas. The geographical coordinates of the site are 32°42' 22.1" north latitude and 96° 42' 0.75" west longitude. The landfill occupies approximately 84 acres and is bordered by a residential neighborhood to the north, the Woodland Spring Park to the east, the Trinity River and McCommas Bluff Park to the south, and non-operational quarry land to the west. The nearest residents are located approximately 30 yards north of the landfill. An apartment complex is north of the intersection of Jim Miller Road and Gayglen Drive.

The landfill can be divided into three primary areas: the North Disposal Area, the South Side and the West Side. The North Side Disposal Area contains the majority of the debris and comprises approximately 35 acres with waste reaching a depth of 20-30 feet. The South Side consists of low-lying areas not utilized in the day to day operations of the facility and comprises approximately 24 acres. The West Side, approximately 25 acres, consists of low-lying areas and had limited use as a disposal area.

The site was an unlicenced and unpermitted landfill that accepted primarily construction materials from mid-1994 until mid-1996. There are no manifests or records of wastes that the landfill received and there are documented episodes of illegal dumping of unknown materials at night.

The City of Dallas took civil action against Mr. Nethery, the site owner, in 1996. In June 1996, the Texas Natural Resource Conservation Commission (TNRCC) and the EPA-criminal Investigation Division (CID) began to investigate the landfill operations for possible criminal intent. On September 13, 1996, TNRCC and EPA-CID conducted an inspection at the landfill. The inspectors observed a smoldering area within the landfill and the Superfund Technical Assistance and Response Team (START) responded to the fire, conducting air monitoring, and documenting site conditions. Air monitoring equipment was used to detect volatile organic compounds (VOCs), cyanide, hydrogen sulfide, phosgene and radiation. Monitoring results did not indicate the presence of these contaminants at concentrations greater than background levels (TDD S06-96-09-0013). EPA issued a cease-and-desist order, which closed the landfill, because of the possible migration of surface water runoff from the landfill to the Trinity River. No cap has been placed on the landfill and the waste is exposed.

Based on a review of site files and information obtained during the July 1, 8, and 15th 1999 site reconnaissances, it has been determined that the North Disposal Area warrants further investigation to evaluate the possible presence and migration of contaminants. The North

Disposal Area has been identified as a possible source and will therefore be the focus of this SI.

1.3 SITE-SPECIFIC OBJECTIVES

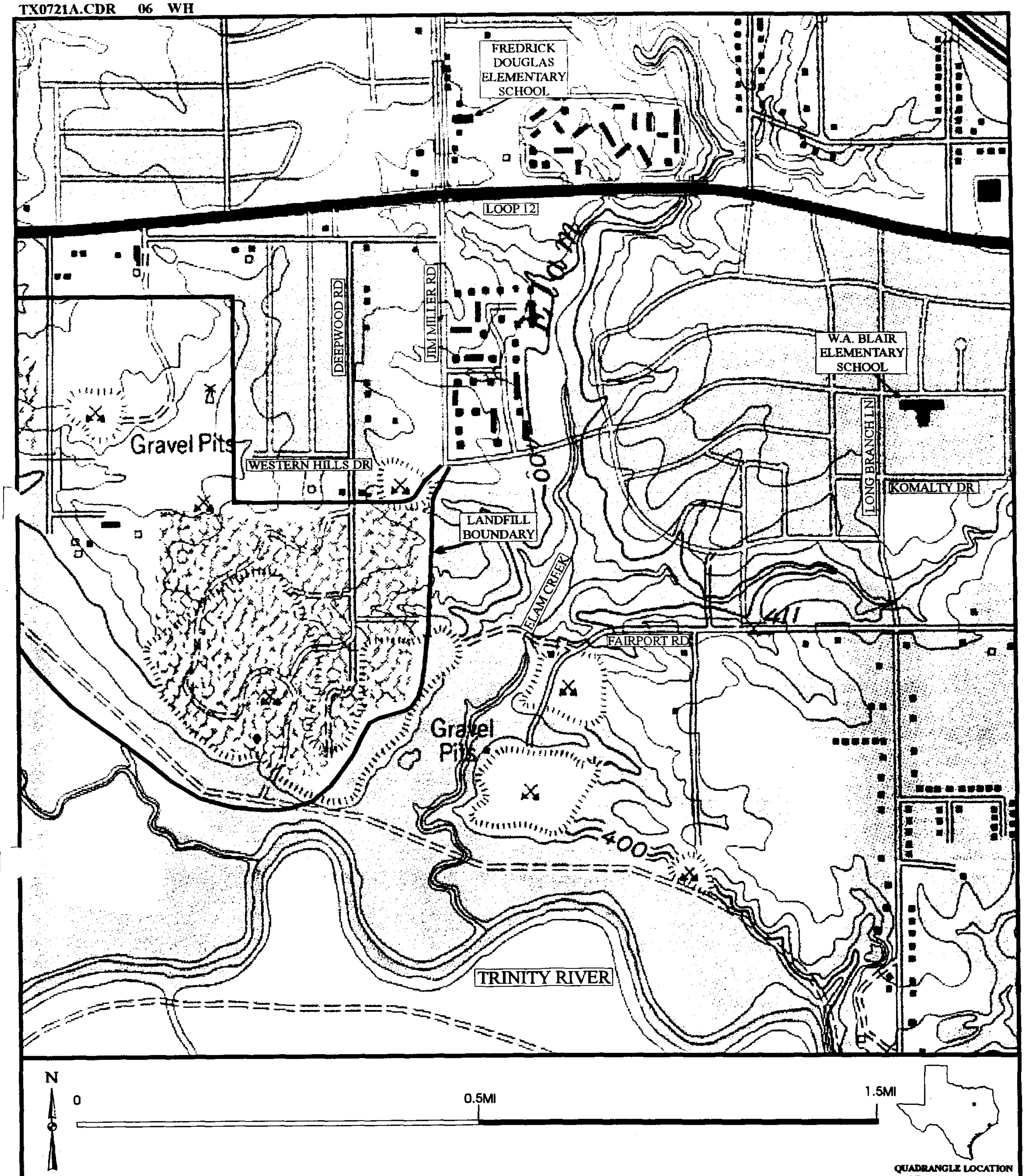
The objectives of the SI are to obtain HRS-quality analytical data to characterize the landfill and to determine if surrounding surface waters, which meet the HRS definition of wetlands, have been contaminated by material from Nethery Landfill. See Appendix A for description, location and rationale of the samples to be collected during the SI.

To meet the objectives of the SI, a total of 19 samples, including field duplicates, will be collected. Four grab soil samples, including a duplicate and a background, will be collected from the North Disposal Area. These samples will be collected from a depth of 0 to 6 inches in the trench along the east side of the pile. Five sediment samples will be collected from the overflow south of the waste pile at approximately 100 foot intervals. Three sediment samples will be collected from the pond east of the waste pile. Two sediment samples will be collected from the overflow at the south end of the pond. Five sediment samples, including a duplicate and background, will be collected from Elam Creek. These samples will be collected at approximately 200 foot intervals beginning at the Probable Point of Entry (PPE).

All soil and sediment samples will be analyzed by Contract Laboratory Program (CLP) laboratories for Target Compound List (TCL) and Target Analyte List (TAL) constituents.

All surface soil and sediment samples from the site will be collected utilizing dedicated stainless steel trowels and homogenized (with the exception of the volatile fraction) either in place or in dedicated stainless steel mixing bowels prior to transfer to sample jars. All soil samples will be preserved by placing bagged ice into the shipping containers. No chemical preservatives will be used to preserve the samples.

TX0721A.CDR 06 WH



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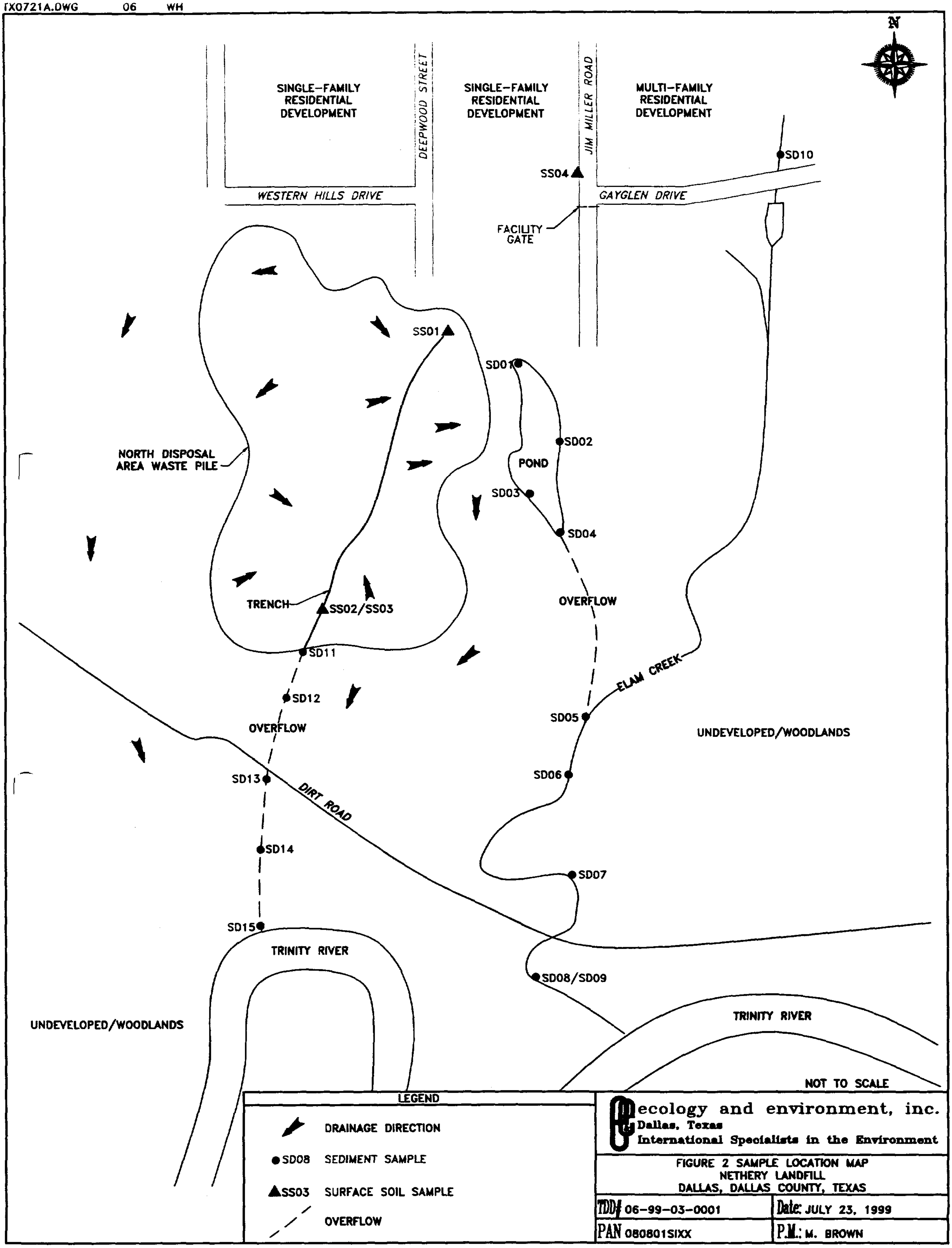
CERCLIS/CASE#: NA	**TDD#** S06-99-03-0001
SOURCE: U.S.G.S. 7.5 MIN. TOPOGRAPHIC QUADRANGLE HUTCHINS, TEXAS 1958	

FIGURE 1
SITE LOCATION MAP

TX0721A.DWG 06 WH



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Dallas, Texas
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FIGURE 2 SAMPLE LOCATION MAP
NETHERY LANDFILL
DALLAS, DALLAS COUNTY, TEXAS

TDD# 06-99-03-0001 | Date: JULY 23, 1999
PAN 080801SIXX | P.M.: M. BROWN

All samples will be iced to 4°C for shipment to the appropriate laboratory.

Samples collected by START during the course of the SI will be packaged according to EPA protocols found in EPA/540/P-87/001, *"A Compendium of Superfund Field Operations Methods"*. All samples will be shipped for overnight delivery, via Federal Express, to the designated laboratory.

2.0 DATA REVIEW AND DATA COLLECTION

This section summarizes previous sampling and non-sampling data collected and identifies additional data collection needs for each pathway of concern.

2.1 PREVIOUS SAMPLING DATA

Areas of the site have been sampled by TNRCC, START, and City of Dallas-Dallas Water Utilities.

Initial sampling at the landfill was conducted by the TNRCC in late August and early September of 1996. Metals, Base Neutral Acids (BNA), Total Petroleum Hydrocarbons (TPH), Total Solids and Volatile Organics (VOA) analyses were conducted on water and soil samples. The BNA results were not available to START. Low levels of metals and VOAs were detected in the soil samples analyzed, and all of the samples contained petroleum hydrocarbon.

START performed air sampling in March of 1997 during a fire at the site. The results showed that all contaminant levels were near or below detection limits.

Also in March of 1997, during the fire, the City of Dallas-Dallas Water Utilities analyzed three water samples. Results indicated only one analysis that was slightly elevated, with the effluent from the landfill containing Benzene at 7.1 ppb. The state limit for benzene is 5.0 ppb. No other sampling has taken place since March of 1997.

2.2 SOURCE WASTE CHARACTERIZATION

Based on review of site files and the site reconnaissance, the North Disposal Ares has been identified as the source. This area occupies approximately 35 acres and has a waste thickness of 20 to 30 feet in some areas.

2.3 GROUND WATER PATHWAY

The site is located on the Trinity aquifer. The Trinity aquifer occurs in rocks of Cretaceous age and consists primarily of dolomitic limestone with interbedded sand, shale, and clay. Underlying the Trinity aquifer is a confining unit consisting of clay and shale.

There are no wells used for drinking water within four miles of the landfill. All potable water in the area is supplied by reservoirs located to the north of the site.

The ground water pathway is not of concern due to lack of targets.

2.4 SURFACE WATER PATHWAY

The landfill is located between Elam Creek to the east and the Trinity River to the south, between a 500 year and 100 year floodplain. The two-year, 24 hour rainfall is approximately 4 inches.

Several small ponds are scattered throughout the site with abundant hydrophytic vegetation at the pond margins. A pond located on the east side of the North Disposal Area drains to the southeast approximately 1000 feet into Elam Creek, the PPE into surfacewater. Elam Creek flows approximately 1500 feet from the PPE into the Trinity River. Surface water runoff from the south of the North Disposal Area flows approximately 500 feet into the Trinity River.

The Trinity River is a fishery and has no water intakes within the fifteen mile Target Distance Limit (TDL). The annual minimum 7 day flow according to the United States Geological Survey (USGS) in 1995 was approximately 390 cubic feet per second.

According to the National Wetlands Inventory (NWI) maps and 40 CFR 230.3, the landfill is surrounded by eligible HRS wetlands. Eligible wetlands border Elam Creek and parts of the Trinity River, south of the North Disposal Area. Several federal and listed threatened and endangered species, including the Black-capped Vireo, the Interior Least Tern, Migrant Loggerhead Shrike and the Texas Garter Snake may inhabit areas along the 15-mile TDL; however, they have not been officially documented as being present.

Due to the potential environmental threat, sediment samples will be collected by START from the wetlands to determine whether the surface water pathway has been affected by potential site-related contaminants.

2.5 SOIL EXPOSURE PATHWAY

The entrance to the landfill is fenced and locked. A fence surrounds the northern perimeter of the landfill. To the east of the landfill is Elam Creek, to the south is the Trinity River and to the west are abandoned gravel pits. There is evidence that local residents may trespass on the property with egress from southeast of the site. The nearest residence is approximately 100 feet to the north. The population within a 1-mile radius is approximately 7,537. The surrounding areas to the north and east are highly populated, but no schools or daycare facilities are located within 200 feet of the landfill. Soil samples will be collected to determine whether hazardous substances are present in the surface soils.

2.6 AIR MIGRATION PATHWAY

The population within the 4-mile radius is 80,447. The landfill is moderately vegetated, which would limit the potential for gaseous or particulate release to the air. There were no odors detected upon the site reconnaissance.

No air samples will be collected at this time.

3.0 PROJECT MANAGEMENT

Key personnel, Investigation Derived Wastes (IDW), schedule and community relations are addressed in this section.

3.1 KEY PERSONNEL

Michelle Brown is the Task Manager for this SI. Her responsibilities will include the planning and implementation of all field activities and preparation of the final report. A Site Safety Officer will be assigned who will prepare and implement the site safety plan. Two additional START members will be utilized in the sampling operations conducted at the site.

3.2 IDW PROCEDURES

With the collection of the environmental samples during the SI, the contractor will generate different types of investigation derived wastes (IDW) that could possibly contain Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) classified wastes. The IDW may include used personal protective equipment and disposable sampling equipment. Based on the potential liability of CERCLA and RCRA classified wastes, all generated IDW will be managed in a manner consistent with EPA guidance set forth in EPA/540/G-91/9009, *Management of Investigation Derived Wastes During Site Inspections.*

All field and sampling equipment will be properly decontaminated according to the EPA protocol found in EPA/540/P-87/001 *A Compendium of Superfund Field Operations Methods.* PPE, disposable sampling equipment, and trash generated during the SI will be double-bagged and disposed of in a RCRA Subtitle-D regulated landfill.

3.3 SCHEDULE

The SI is scheduled for the week of August 9, 1999. The SI activities are anticipated to last from 3 to 4 days.

3.4 COMMUNITY RELATIONS

Persons requesting site information will be instructed to submit a Freedom of Information Request to: Freedom of Information Officer, U.S. EPA Region 6, 1445 Ross Avenue, Dallas, Texas, 75202-2733. Reporters will be instructed to contact the Office of External Affairs at 214/665-2200.

APPENDIX A

Appendix A
SAMPLE DESCRIPTION AND RATIONALE

Sample Number	Description Rationale
SS01	Source soil sample collected from 0" to 6"in depth in the North Disposal Area. Sample location will be field determined. This sample will be designated as a MS/MSD. Rationale: This sample will serve to characterize the contents of the landfill.
SS02	Source soil sample collected from 0" to 6" in depth in the North Disposal Area. Sample location will be field determined. Rationale: This sample will serve to characterize the contents of the landfill.
SS03	Duplicate sample of SS02. This sample will serve as a soil matrix duplicate sample as required by regional guidance. Rationale: To check field and laboratory procedures.
SS04	Background soil sample collected from 0" to 6" in depth. Sample will serve as a background sample and the location will be field determined. Rationale: To determine the ambient concentrations of organic compounds and inorganic analytes.
SD01	Target sediment sample collected from the pond east of the North Disposal Area. Rationale: To determine if hazardous substances from the landfill have migrated into the pond.
SD02	Target sediment sample collected from the pond east of the North Disposal Area. Rationale: To determine if hazardous substances from the landfill have migrated into the pond.

Sample Number	Description Rationale
SD03	Target sediment sample collected from the pond east of the North Disposal Area. Rationale: To determine if hazardous substances from the landfill have migrated into the pond.
SD04	Target sediment sample collected from the overflow at the south end of the pond. Rationale: To determine if hazardous substances from the pond have migrated to the overflow
SDO5	Target sediment sample collected at the PPE from the overflow into Elam Creek. Rationale: To determine if hazardous substances from the overflow have migrated to Elam Creek.
SD06	Target sediment sample collected from Elam Creek. This sample will be designated as a MS/MSD. Rationale: To determine if hazardous substances have entered a HRS criteria wetland.
SD07	Target sediment sample collected from Elam Creek. Rationale: To determine if hazardous substances have entered a HRS criteria wetland.
SD08	Target sediment sample collected from Elam Creek. Rationale: To determine if hazardous substances have entered a HRS criteria wetland.
SD09	Duplicate of sample SD07. This sample will serve as a sediment matrix duplicate sample as required by regional guidance. Rationale: To check field and laboratory procedures.
SD10	Background sediment sample collected upstream of the PPE in Elam Creek. Rationale: To determine the ambient concentrations of organic compounds and inorganic analytes.

Sample Number	Description Rationale
SD11	Target sediment sample collected from the overflow south of the North Disposal Area.. Rationale: To determine if hazardous substances from the landfill have migrated to the overflow.
SD12	Target sediment sample collected from the overflow south of the North Disposal Area. Rationale: To determine if hazardous substances have entered the drainage pathway to the Trinity River.
SD13	Target sediment sample collected from the overflow south of the North Disposal Area. Rationale: To determine if hazardous substances have entered the drainage pathway to the Trinity River.
SD14	Target sediment sample collected from the overflow south of the North Disposal Area. Rationale: To determine if hazardous substances have entered the drainage pathway to the Trinity River.
SD15	Target sediment sample collected from the overflow south of the North Disposal Area. Rationale: To determine if hazardous substances have entered the drainage pathway to the Trinity River.

Reference 22

MAXIM
TECHNOLOGIES INC

2575 Lone Star Drive P.O. Box 224227 • Dallas, Texas 75222 • 214-631-2700

Client	ERNIE HEYER TX. NATURAL RESOURCE CONS.COM P.O. BOX 13087 AUSTIN, TX 787113087		Client No. 4175350 Report No. D6-09-044 Report Date 11/04/96 13:48
Project	N. L. Site	Phone: 512-239-1000	Fax: 512-463-8310

Date Sampled 09/11/96

Sampled By Danny McReynolds, Guy Tidmore

Sample Type Liquid and Solid

Transported by Roger Potts

P.O. # 582-6-41380

Date Received 09/12/96

Lab No.	Sample Identification
D6-09-044-01	Sample #1
D6-09-044-02	Sample #2
D6-09-044-03	Sample #3
D6-09-044-04	Sample #4
D6-09-044-05	Sample #5
D6-09-044-06	Sample #6A
D6-09-044-07	Sample #7 Liquid Layer
D6-09-044-08	Sample #8
D6-09-044-09	Sample #9

MAXIM

Mary Thrasher

Reviewed By

William J. Gase, Supervisor

MAXIM

11/04/96 13:48

TEST RESULTS BY SAMPLE

Client: TX. NATURAL RESOURCE CONS.COM

Sample: 01A Sample #1 Collected: 09/11/96 09:39 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Base Neutral Acid	SW846-8270A	Enclosure	Date Com		09/23/96	MT
Total Petroleum Hydrocrbns	EPA 418.1	352000	mg/kg	40000	09/25/96	JA
Total Solids	EPA 160.3	92.8	%	0.02	09/24/96	JLA
Volatile Organics	SW846-8260	Enclosure	Date Com		09/20/96	CLU

Sample: 02A Sample #2 Collected: 09/11/96 09:59 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Base Neutral Acid	SW846-8270A	Enclosure	Date Com		09/26/96	MT
Total Petroleum Hydrocrbns	EPA 418.1	129000	mg/kg	4000	09/25/96	JA
Total Solids	EPA 160.3	91.0	%	0.02	09/24/96	JLA
Volatile Organics	SW846-8260	Enclosure	Date Com		09/20/96	CLU

Sample: 03A Sample #3 Collected: 09/11/96 10:21 Category: W

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Base Neutral Acid	SW846-8270A	Enclosure	Date Com		09/27/96	MT
Total Petroleum Hydrocrbns	EPA 418.1	911000	mg/L	500000	09/20/96	JA
Volatile Organics	SW846-8260	Enclosure	Date Com		09/20/96	CLU

Sample: 04A Sample #4 Collected: 09/11/96 10:33 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Base Neutral Acid	SW846-8270A	Enclosure	Date Com		09/26/96	MT
Total Petroleum Hydrocrbns	EPA 418.1	196000	mg/kg	10000	09/25/96	JA
Total Solids	EPA 160.3	87.7	%	0.02	09/24/96	JLA
Volatile Organics	SW846-8260	Enclosure	Date Com		09/23/96	CLU

Sample: 05A Sample #5 Collected: 09/11/96 11:21 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Base Neutral Acid	SW846-8270A	Enclosure	Date Com		09/26/96	MT
Total Petroleum Hydrocrbns	EPA 418.1	157000	mg/kg	10000	09/25/96	JA
Total Solids	EPA 160.3	86.6	%	0.02	09/24/96	JLA
Volatile Organics	SW846-8260	Enclosure	Date Com		09/20/96	CLU

Sample: 06A Sample #6A Collected: 09/11/96 12:12 Category: W
Job: RCRAMW RCRA - Metals Only

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Arsenic	EPA 206.2	0.022	mg/L	0.01	10/03/96	BG
Barium	EPA 200.7	0.136	mg/L	0.1	09/25/96	TAM
Cadmium	EPA 200.7	<0.02	mg/L	0.02	09/25/96	TAM
Chromium	EPA 200.7	<0.05	mg/L	0.05	09/25/96	TAM
Lead	EPA 200.7	<0.10	mg/L	0.1	09/25/96	TAM
Mercury	EPA 245.1	<0.002	mg/L	0.002	09/25/96	TAM
Selenium	EPA 270.2	<0.005	mg/L	0.005	10/17/96	BG
Silver	EPA 272.1	<0.02	mg/L	0.02	10/04/96	CL
Water Digestion	SW 3010/3020	09/17/96	Date Com			DC

Sample: 06B Sample #6 Collected: 09/11/96 12:12 Category: W

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Base Neutral Acid	SW846-8270A	Enclosure	Date Com		09/27/96	MT
Volatile Organics	SW846-8260	Enclosure	Date Com		09/17/96	CLU

11/04/96 13:48

TEST RESULTS BY SAMPLE

Client: TX. NATURAL RESOURCE CONS.COM

Sample: 07A Sample #7 Liquid Layer Collected: 09/11/96 15:01 Category: W

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Arsenic	EPA 206.2	0.010	mg/L	0.01	10/03/96	BG
Barium	EPA 200.7	<0.10	mg/L	0.1	09/25/96	TAM
Base Neutral Acid	SW846-8270A	Enclosure	Date Com		09/27/96	MT
Cadmium	EPA 200.7	<0.02	mg/L	0.02	09/25/96	TAM
Chromium	EPA 200.7	<0.05	mg/L	0.05	09/25/96	TAM
Lead	EPA 200.7	<0.10	mg/L	0.1	09/25/96	TAM
Mercury	EPA 245.1	<0.002	mg/L	0.002	09/25/96	TAM
Selenium	EPA 270.2	<0.005	mg/L	0.005	10/17/96	BG
Silver	EPA 272.1	0.03	mg/L	0.02	10/04/96	CL
Total Petroleum Hydrocrbns	EPA 418.1	586	mg/L	100	09/20/96	JA
Volatile Organics	SW846-8260	Enclosure	Date Com		09/20/96	CLT
Water Digestion	SW 3010/3020	09/17/96	Date Com			DC

Sample: 07B Sample #7 Solid Layer Collected: 09/11/96 15:01 Category: W

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Arsenic	SW846-7060A	<1.0	mg/kg	1	10/07/96	BG
Barium	SW846-6010A	6.23	mg/kg	0.02	10/09/96	DC
Base Neutral Acid	SW846-8270A	Enclosure	Date Com		09/27/96	MT
Cadmium	SW846-6010A	< 2	mg/kg	2	10/09/96	CL
Chromium	SW846-6010A	< 5	mg/kg	5	10/09/96	CL
Digestion of Solid	SW846-3050A	09/27/96	Date Com			DC
Lead	SW846-6010A	<10	mg/kg	10	10/02/96	DC
Mercury	SW846-7471A	< 0.6	mg/kg	0.6	09/25/96	TAM
Selenium	SW846-7740	<0.5	mg/kg	0.5	10/07/96	BG
Silver	SW846-7760A	<2.0	mg/kg	2	10/04/96	CL
Total Petroleum Hydrocrbns	EPA 418.1	30800	mg/kg	10000	09/20/96	JA
Volatile Organics	SW846-8260	Enclosure	Date Com		09/20/96	CLT

Sample: 08A Sample #8 Collected: 09/11/96 16:08 Category: W

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Ignitability	SW846-1010	>160	DEG. F		09/25/96	JA
Total Petroleum Hydrocrbns	EPA 418.1	928000	mg/L	200000	09/20/96	JA

TEST RESULTS BY SAMPLE

Client: TX. NATURAL RESOURCE CONS.COM

Sample: 09A Sample #9 Collected: 09/11/96 16:19 Category: W

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Ignitability	SW846-1010	>160	DEG. F		09/25/96	JA
Total Petroleum Hydrocrbns	EPA 418.1	928000	mg/L	200000	09/20/96	JA

Analysis Request and Chain of Custody Record

Page ______ of ______

MAXIM TECHNOLOGIES INC

- ☐ **HOUSTON EAS** 222 CAVALCADE ST., HOUSTON, TEXAS 77009 (713) 692-9151
- ☒ **DALLAS EAS** 2575 LONE STAR DR., DALLAS, TEXAS 75212 (214) 631-2700
- ☐ **MIDLAND EAS** 1703 WEST INDUSTRIAL, MIDLAND, TEXAS 79701 (915) 683-3349

Project no.

Client/Project: N. L. Site
Texas Natural Resource Conservation Comm., Special Investigations

P.O.#

Lab ID No.	Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
✓	Sample #1	9/11/96 9:34AM	X		8oz glass	Liquid	Ice	TPH, GC/MS	
✓	Sample #2	9/11/96 9:54Am	X		8oz glass	Liquid	Ice	TPH, GC/MS	
✓	Sample #3	9/11/96 10:21Am	X		8oz glass	Liquid	Ice	TPH, GC/MS	
✓	Sample #4	9/11/96 10:33AM	X		8oz glass	Liquid	Ice	TPH, GC/MS	
✓	Sample #5	9/11/96 11:21Am	X		8oz glass	Liquid	Ice	TPH, GC/MS	
✓	Sample #6A	9/11/96 12:12Am	X		1Liter Cubitainer	Liquid	Ice	Total Metals	
✓	Sample #6	9/11/96 12:12Pm	X		8oz glass	Liquid	Ice	GC/MS	
✓	Sample #7	9/11/96 3:01PM	X		8oz glass	Liquid	Ice	TPH, GC/MS, Total metals	
✓	Sample #8	9/11/96 4:08Pm	X		8oz glass	Liquid	Ice	TPH, Ignitability	
✓	Sample #9	9/11/96 4:19Pm	X		8oz glass	Liquid	Ice	TPH, Ignitability	

Samplers: (Print) Danny McReynolds, Guy Tidmore

Affiliation: TNRCC EPA

Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:
Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:
Relinquished by: (Signature) [signature]	Date: 9/12/96 Time: 11:00AM	Received by Laboratory: (Signature) [signature]	Date: 9/12/96 Time: 11:00a

COC Seal No.

REC'D. ON ICE Yes ✓ No ____

Intact: yes

Results by ______

Rush Charges Authorized Yes ____ No ____

REMARKS:

Data Results To:
1. Earnest Heyer
2. James Navarette

Laboratory No. D609044

MAXIM

Order # D6-09-006

09/23/96 10:30

TEST RESULTS BY SAMPLE

Client: TX. NATURAL RESOURCE CONS.COM

Sample: 03A 183917 Collected: 08/28/96 13:50 Category: W

Job: RCRAMW RCRA - Metals Only

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Arsenic	EPA 206.2	<0.01	mg/L	0.01	09/13/96	TAM
Barium	EPA 200.7	<0.1	mg/L	0.1	09/12/96	TAM
Cadmium	EPA 200.7	<0.02	mg/L	0.02	09/12/96	TAM
Chromium	EPA 200.7	<0.05	mg/L	0.05	09/12/96	TAM
Lead	EPA 200.7	<0.1	mg/L	0.1	09/12/96	TAM
Mercury	EPA 245.1	<0.002	mg/L	0.002	09/10/96	TAM
Selenium	EPA 270.2	<0.005	mg/L	0.005	09/13/96	TAM
Silver	EPA 272.1	<0.02	mg/L	0.02	09/11/96	TAM
Water Digestion	SW 3010/3020	09/11/96				DC

Sample: 04A 183947 Collected: 08/28/96 13:55 Category: W

Test Name	Method	Result	Units	Detection Limit	Date Analyzed	Analyst
Arsenic	EPA 206.2	<0.4	mg/L	0.4	09/13/96	TAM
Barium	EPA 200.7	<1	mg/L	1	09/12/96	TAM
Cadmium	EPA 200.7	[illegible]	mg/L	0.2	09/12/96	TAM
Chromium	EPA 200.7	44.5	mg/L	0.5	09/12/96	TAM
Lead	EPA 200.7	14.1	mg/L	1	09/12/96	TAM
Mercury	EPA 245.1	0.135	mg/L	0.02	09/10/96	TAM
Selenium	EPA 270.2	<0.2	mg/L	0.2	09/13/96	TAM
Silver	EPA 272.1	<0.02	mg/L	0.02	09/11/96	TAM
Water Digestion	SW 3010/3020	09/11/96				DC
pH	EPA 150.1	<1	pH units		09/04/96	KB

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 0.8 (g/mL) G
Level: (low/med) Low
Dilution Factor: 1
% Moisture: 7.2

Lab Number: D609044-01
Client: TNRCC
Sample ID: SAMPLE #1
Lab File ID: >AT771
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
67-64-1	Acetone	1700.	E
78-93-3	2-Butanone_(MEK)	670.	U
107-02-8	Acrolein	340.	U
107-13-1	Acrylonitrile	340.	U
591-78-6	2-Hexanone	340.	U
108-10-1	4-Methyl-2-pentanone_(MIBK)	670.	
108-05-4	Vinyl Acetate	340.	U
74-83-9	Bromomethane	67.	U
75-00-3	Chloroethane	67.	U
110-75-8	2-Chloroethyl_Vinyl_Ether	67.	U
74-87-3	Chloromethane	67.	U
75-71-8	Dichlorodifluoromethane	67.	U
75-69-4	Trichlorofluoromethane	67.	U
75-01-4	Vinyl Chloride	67.	U
108-86-1	Bromobenzene	34.	U
75-97-5	Bromochloromethane	34.	U
75-27-4	Bromodichloromethane	34.	U
75-25-2	Bromoform	34.	U
104-51-8	n-Butylbenzene	34.	U
135-98-8	sec-Butylbenzene	34.	U
98-06-6	tert-Butylbenzene	34.	U
75-15-0	Carbon Disulfide	670.	U
56-23-5	Carbon Tetrachloride	34.	U
108-90-7	Chlorobenzene	34.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.
E - Exceeds upper calibration limit.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 0.8 (g/mL) G
Level: (low/med) Low
Dilution Factor: 1
% Moisture: 7.2

Lab Number: D609044-01
Client: TNRCC
Sample ID: SAMPLE #1
Lab File ID: >AT771
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
124-48-1	Chlorodibromomethane	34.	U
67-66-3	Chloroform	34.	U
95-49-8	2-Chlorotoluene	34.	U
106-43-4	4-Chlorotoluene	34.	U
96-12-8	1,2-Dibromo-3-chloropropane	34.	U
106-93-4	1,2-Dibromoethane	34.	U
74-95-3	Dibromomethane	34.	U
95-50-1	1,2-Dichlorobenzene	34.	U
541-73-1	1,3-Dichlorobenzene	34.	U
106-46-7	1,4-Dichlorobenzene	34.	U
110-57-6	1,4-Dichloro-2-butene	34.	U
75-34-3	1,1-Dichloroethane	34.	U
107-06-2	1,2-Dichloroethane	34.	U
75-35-4	1,1-Dichloroethene	34.	U
78-87-5	1,2-Dichloropropane	34.	U
156-59-2	cis-1,2-Dichloroethene	34.	U
156-60-5	trans-1,2-Dichloroethene	34.	U
78-87-5	1,2-Dichloropropane	34.	U
142-28-9	1,3-Dichloropropane	34.	U
594-20-7	2,2-Dichloropropane	34.	U
563-58-6	1,1-Dichloropropene	34.	U
10061-01-5	cis-1,3-Dichloropropene	34.	U
10061-02-6	trans-1,3-Dichloropropene	34.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 0.8 (g/mL) G
Level: (low/med) Low
Dilution Factor: 1
% Moisture: 7.2

Lab Number: D609044-01
Client: TNRCC
Sample ID: SAMPLE #1
Lab File ID: >AT771
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
97-63-2	Ethyl Methacrylate	34.	U
87-68-3	Hexachlorobutadiene	34.	U
98-82-8	Isopropyl_benzene_(Cumene)	34.	U
99-87-6	4-Isopropyltoluene	34.	U
75-09-2	Methylene_Chloride	67.	U
91-20-3	Naphthalene	34.	U
103-65-1	n-Propylbenzene	34.	U
100-42-5	Styrene	34.	U
630-20-6	1,1,1,2-Tetrachloroethane	34.	U
79-34-5	1,1,2,2-Tetrachloroethane	34.	U
127-18-4	Tetrachloroethene	34.	U
87-61-6	1,2,3-Trichlorobenzene	34.	U
120-82-1	1,2,4-Trichlorobenzene	34.	U
71-55-6	1,1,1-Trichloroethane	34.	U
79-00-5	1,1,2-Trichloroethane	34.	U
79-01-6	Trichloroethene	35.	
96-18-4	1,2,3-Trichloropropane	34.	U
95-63-6	1,2,4-Trimethylbenzene	34.	U
108-67-8	1,3,5-Trimethylbenzene	34.	U
71-43-2	Benzene	34.	U
108-67-8	1,3,5-Trimethylbenzene	34.	U
71-43-2	Benzene	34.	U
100-41-4	Ethylbenzene	34.	U
108-88-3	Toluene	34.	U
133-02-7	Xylene (total)	34.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 1.5 (g/mL) G
Level: (low/med) Low
Dilution Factor: 40
% Moisture: 9

Lab Number: D609044-02
Client: TNRCC
Sample ID: SAMPLE #2
Lab File ID: >AT778
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
67-64-1	Acetone	15000.	U D
78-93-3	2-Butanone (MEK)	15000.	U D
107-02-8	Acrolein	7300.	U D
107-13-1	Acrylonitrile	7300.	U D
591-78-6	2-Hexanone	7300.	U D
108-10-1	4-Methyl-2-pentanone (MIBK)	7300.	U D
108-05-4	Vinyl Acetate	7300.	U D
74-83-9	Bromomethane	1500.	U D
75-00-3	Chloroethane	1500.	U D
110-75-8	2-Chloroethyl Vinyl Ether	1500.	U D
74-87-3	Chloromethane	1500.	U D
75-71-8	Dichlorodifluoromethane	1500.	U D
75-69-4	Trichlorofluoromethane	1500.	U D
75-01-4	Vinyl Chloride	1500.	U D
108-86-1	Bromobenzene	730.	U D
75-97-5	Bromochloromethane	730.	U D
75-27-4	Bromodichloromethane	730.	U D
75-27-4	Bromodich[illegible]	730.	U D
75-25-2	Bromoform	730.	U D
104-51-8	n-Butylbenzene	730.	U D
135-98-8	sec-Butylbenzene	730.	U D
98-06-6	tert-Butylbenzene	730.	U D
75-15-0	Carbon Disulfide	15000.	U D
56-23-5	Carbon Tetrachloride	730.	U D
108-90-7	Chlorobenzene	730.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 1.5 (g/mL) G
Level: (low/med) Low
Dilution Factor: 40
% Moisture: 9

Lab Number: D609044-02
Client: TNRCC
Sample ID: SAMPLE #2
Lab File ID: >AT778
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
124-48-1	Chlorodibromomethane	730.	U D
67-66-3	Chloroform	730.	U D
95-49-8	2-Chlorotoluene	730.	U D
106-43-4	4-Chlorotoluene	730.	U D
96-12-8	1,2-Dibromo-3-chloropropane	730.	U D
106-93-4	1,2-Dibromoethane	730.	U D
74-95-3	Dibromomethane	730.	U D
95-50-1	1,2-Dichlorobenzene	730.	U D
541-73-1	1,3-Dichlorobenzene	730.	U D
106-46-7	1,4-Dichlorobenzene	730.	U D
110-57-6	1,4-Dichloro-2-butene	730.	U D
75-34-3	1,1-Dichloroethane	730.	U D
107-06-2	1,2-Dichloroethane	730.	U D
75-35-4	1,1-Dichloroethene	730.	U D
78-87-5	1,2-Dichloropropane	730.	U D
156-59-2	cis-1,2-Dichloroethene	730.	U D
156-60-5	trans-1,2-Dichloroethene	730.	U D
78-87-5	1,2-Dichloropropane	730.	U D
142-28-9	1,3-Dichloropropane	730.	U D
594-20-7	2,2-Dichloropropane	730.	U D
563-58-6	1,1-Dichloropropene	730.	U D
10061-01-5	cis-1,3-Dichloropropene	730.	U D
10061-02-6	trans-1,3-Dichloropropene	730.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 1.5 (g/mL) G
Level: (low/med) Low
Dilution Factor: 40
% Moisture: 9

Lab Number: D609044-02
Client: TNRCC
Sample ID: SAMPLE #2
Lab File ID: >AT778
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
97-63-2	Ethyl Methacrylate	730.	U D
87-68-3	Hexachlorobutadiene	730.	U D
98-82-8	Isopropyl benzene (Cumene)	730.	U D
99-87-6	4-Isopropyltoluene	730.	U D
75-09-2	Methylene Chloride	1500.	U D
91-20-3	Naphthalene	1300.	D
103-65-1	n-Propylbenzene	730.	U D
100-42-5	Styrene	730.	U D
630-20-6	1,1,1,2-Tetrachloroethane	730.	U D
79-34-5	1,1,2,2-Tetrachloroethane	730.	U D
127-18-4	Tetrachloroethane	730.	U D
87-61-6	1,2,3-Trichlorobenzene	730.	U D
120-82-1	1,2,4-Trichlorobenzene	730.	U D
71-55-6	1,1,1-Trichloroethane	730.	U D
79-00-5	1,1,2-Trichloroethane	730.	U D
79-01-6	Trichloroethene	810.	D
[illegible]	1,2,3-Trichloro[illegible]	730	U D
79-01-6	Trichloroethene	810.	D
96-18-4	1,2,3-Trichloropropane	730.	U D
95-63-6	1,2,4-Trimethylbenzene	730.	U D
108-67-8	1,3,5-Trimethylbenzene	730.	U D
71-43-2	Benzene	730.	U D
100-41-4	Ethylbenzene	730.	U D
108-88-3	Toluene	730.	U D
133-02-7	Xylene (total)	730.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 0.6 (g/mL) G
Level: (low/med) Low
Dilution Factor: 40
% Moisture: 1

Lab Number: D609044-03
Client: TNRCC
Sample ID: SAMPLE #3
Lab File ID: >AT779
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
67-64-1	Acetone	34000.	U D
78-93-3	2-Butanone (MEK)	34000.	U D
107-02-8	Acrolein	17000.	U D
107-13-1	Acrylonitrile	17000.	U D
591-78-6	2-Hexanone	17000.	U D
108-10-1	4-Methyl-2-pentanone (MIBK)	17000.	U D
108-05-4	Vinyl Acetate	17000.	U D
74-83-9	Bromomethane	3400.	U D
75-00-3	Chloroethane	3400.	U D
110-75-8	2-Chloroethyl Vinyl Ether	3400.	U D
74-87-3	Chloromethane	3400.	U D
75-71-8	Dichlorodifluoromethane	3400.	U D
75-69-4	Trichlorofluoromethane	3400.	U D
75-01-4	Vinyl Chloride	3400.	U D
108-86-1	Bromobenzene	1700.	U D
75-97-5	Bromochloromethane	1700.	U D
75-27-4	Bromodichloromethane	1700.	U D
75-25-2	Bromoform	1700.	U D
104-51-8	n-Butylbenzene	1700.	U D
135-98-8	sec-Butylbenzene	1700.	U D
98-06-6	tert-Butylbenzene	1700.	U D
75-15-0	Carbon Disulfide	34000.	U D
56-23-5	Carbon Tetrachloride	1700.	U D
108-90-7	Chlorobenzene	1700.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 0.6 (g/mL) G
Level: (low/med) Low
Dilution Factor: 40
% Moisture: 1

Lab Number: D609044-03
Client: TNRCC
Sample ID: SAMPLE #3
Lab File ID: >AT779
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
124-48-1	Chlorodibromomethane	1700.	U D
67-66-3	Chloroform	1700.	U D
95-49-8	2-Chlorotoluene	1700.	U D
106-43-4	4-Chlorotoluene	1700.	U D
96-12-8	1,2-Dibromo-3-chloropropane	1700.	U D
106-93-4	1,2-Dibromoethane	1700.	U D
74-95-3	Dibromomethane	1700.	U D
95-50-1	1,2-Dichlorobenzene	1700.	U D
541-73-1	1,3-Dichlorobenzene	1700.	U D
106-46-7	1,4-Dichlorobenzene	1700.	U D
110-57-6	1,4-Dichloro-2-butene	1700.	U D
75-34-3	1,1-Dichloroethane	1700.	U D
107-06-2	1,2-Dichloroethane	1700.	U D
75-35-4	1,1-Dichloroethene	1700.	U D
78-87-5	1,2-Dichloropropane	1700.	U D
156-59-2	cis-1,2-Dichloroethene	1700.	U D
156-60-5	trans-1,2-Dichloroethene	1700.	U D
78-87-5	1,2-Dichloropropane	1700.	U D
142-28-9	1,3-Dichloropropane	1700.	U D
594-20-7	2,2-Dichloropropane	1700.	U D
563-58-6	1,1-Dichloropropene	1700.	U D
10061-01-5	cis-1,3-Dichloropropene	1700.	U D
10061-02-6	trans-1,3-Dichloropropene	1700.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 0.6 (g/mL) G
Level: (low/med) Low
Dilution Factor: 40
% Moisture: 1

Lab Number: D609044-03
Client: TNRCC
Sample ID: SAMPLE #3
Lab File ID: >AT779
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
97-63-2	Ethyl Methacrylate	1700.	U D
87-68-3	Hexachlorobutadiene	1700.	U D
98-82-8	Isopropyl benzene (Cumene)	1700.	U D
99-87-6	4-Isopropyltoluene	1700.	U D
75-09-2	Methylene Chloride	3400.	U D
91-20-3	Naphthalene	27000.	D
103-65-1	n-Propylbenzene	1700.	U D
100-42-5	Styrene	1700.	U D
630-20-6	1,1,1,2-Tetrachloroethane	1700.	U D
79-34-5	1,1,2,2-Tetrachloroethane	1700.	U D
127-18-4	Tetrachloroethene	1700.	U D
87-61-6	1,2,3-Trichlorobenzene	1700.	U D
120-82-1	1,2,4-Trichlorobenzene	1700.	U D
71-55-6	1,1,1-Trichloroethane	1700.	U D
79-00-5	1,1,2-Trichloroethane	1700.	U D
79-01-6	Trichloroethene	1700.	U D
96-18-4	1,2,3-Trichloropropane	1700.	U D
95-63-6	1,2,4-Trimethylbenzene	5000.	D
108-67-8	1,3,5-Trimethylbenzene	1700.	U D
71-43-2	Benzene	1700.	U D
100-41-4	Ethylbenzene	1700.	U D
108-88-3	Toluene	1700.	U D
133-02-7	Xylene (total)	1700.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 1.7 (g/mL) G
Level: (low/med) Low
Dilution Factor: 20
% Moisture: 12.3

Lab Number: D609044-04
Client: TNRCC
Sample ID: SAMPLE #4
Lab File ID: >AT798
Date Received: 09/12/96
Date Analyzed: 9/23/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
67-64-1	Acetone	6700.	U D
78-93-3	2-Butanone (MEK)	6700.	U D
107-02-8	Acrolein	3400.	U D
107-13-1	Acrylonitrile	3400.	U D
591-78-6	2-Hexanone	3400.	U D
108-10-1	4-Methyl-2-pentanone (MIBK)	3400.	U D
108-05-4	Vinyl Acetate	3400.	U D
74-83-9	Bromomethane	670.	U D
75-00-3	Chloroethane	670.	U D
110-75-8	2-Chloroethyl Vinyl Ether	670.	U D
74-87-3	Chloromethane	670.	U D
75-71-8	Dichlorodifluoromethane	670.	U D
75-69-4	Trichlorofluoromethane	670.	U D
75-01-4	Vinyl Chloride	670.	U D
108-86-1	Bromobenzene	340.	U D
75-97-5	Bromochloromethane	340.	U D
75-27-4	Bromodichloromethane	340.	U D
[illegible]	[illegible]	340.	U D
75-97-5	Bromochloromethane	340.	U D
75-27-4	Bromodichloromethane	340.	U D
75-25-2	Bromoform	340.	U D
104-51-8	n-Butylbenzene	340.	U D
135-98-8	sec-Butylbenzene	340.	U D
98-06-6	tert-Butylbenzene	6700.	U D
75-15-0	Carbon Disulfide	340.	U D
56-23-5	Carbon Tetrachloride	340.	U D
108-90-7	Chlorobenzene		

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 1.7 (g/mL) G
Level: (low/med) Low
Dilution Factor: 20
% Moisture: 12.3

Lab Number: D609044-04
Client: TNRCC
Sample ID: SAMPLE #4
Lab File ID: >AT798
Date Received: 09/12/96
Date Analyzed: 9/23/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
124-48-1	Chlorodibromomethane	340.	U D
67-66-3	Chloroform	340.	U D
95-49-8	2-Chlorotoluene	340.	U D
106-43-4	4-Chlorotoluene	340.	U D
96-12-8	1,2-Dibromo-3-chloropropane	340.	U D
106-93-4	1,2-Dibromoethane	340.	U D
74-95-3	Dibromomethane	340.	U D
95-50-1	1,2-Dichlorobenzene	340.	U D
541-73-1	1,3-Dichlorobenzene	340.	U D
106-46-7	1,4-Dichlorobenzene	340.	U D
110-57-6	1,4-Dichloro-2-butene	340.	U D
75-34-3	1,1-Dichloroethane	340.	U D
107-06-2	1,2-Dichloroethane	340.	U D
75-35-4	1,1-Dichloroethene	340.	U D
78-87-5	1,2-Dichloropropane	340.	U D
156-59-2	cis-1,2-Dichloroethene	340.	U D
156-60-5	trans-1,2-Dichloroethene	340.	U D
78-87-5	1,2-Dichloropropane	340.	U D
142-28-9	1,3-Dichloropropane	340.	U D
594-20-7	2,2-Dichloropropane	340.	U D
563-58-6	1,1-Dichloropropene	340.	U D
10061-01-5	cis-1,3-Dichloropropene	340.	U D
10061-02-6	trans-1,3-Dichloropropene	340.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 1.7 (g/mL) G
Level: (low/med) Low
Dilution Factor: 20
% Moisture: 12.3

Lab Number: D609044-04
Client: TNRCC
Sample ID: SAMPLE #4
Lab File ID: >AT798
Date Received: 09/12/96
Date Analyzed: 9/23/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
97-63-2	Ethyl Methacrylate	340.	U D
87-68-3	Hexachlorobutadiene	340.	U D
98-82-8	Isopropyl benzene (Cumene)	340.	U D
99-87-6	4-Isopropyltoluene	340.	U D
75-09-2	Methylene Chloride	670.	U D
91-20-3	Naphthalene	2900.	D
103-65-1	n-Propylbenzene	340.	U D
100-42-5	Styrene	340.	U D
630-20-6	1,1,1,2-Tetrachloroethane	340.	U D
79-34-5	1,1,2,2-Tetrachloroethane	340.	U D
127-18-4	Tetrachloroethene	340.	U D
87-61-6	1,2,3-Trichlorobenzene	340.	U D
120-82-1	1,2,4-Trichlorobenzene	340.	U D
71-55-6	1,1,1-Trichloroethane	340.	U D
79-00-5	1,1,2-Trichloroethane	340.	U D
79-01-6	Trichloroethene	340.	U D
96-18-4	1,2,3-Trichloropropane	340.	U D
95-63-6	1,2,4-Trimethylbenzene	2800.	D
108-67-8	1,3,5-Trimethylbenzene	340.	U D
71-43-2	Benzene	340.	U D
100-41-4	Ethylbenzene	340.	U D
108-88-3	Toluene	340.	U D
133-02-7	Xylene (total)	440.	D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

ab Name: Maxim Technologies, Inc.
ab Code: 05-17 Dallas
atrix: (soil/water) Soil
ample wt/vol: 2.2 (g/mL) G
evel: (low/med) Low
ilution Factor: 40
Moisture: 13.4

Lab Number: D609044-05
Client: TNRCC
Sample ID: SAMPLE #5
Lab File ID: >AT781
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
67-64-1	Acetone	10000.	U D
78-93-3	2-Butanone (MEK)	10000.	U D
107-02-8	Acrolein	5200.	U D
107-13-1	Acrylonitrile	5200.	U D
591-78-6	2-Hexanone	5200.	U D
108-10-1	4-Methyl-2-pentanone (MIBK)	5200.	U D
108-05-4	Vinyl Acetate	5200.	U D
74-83-9	Bromomethane	1000.	U D
75-00-3	Chloroethane	1000.	U D
110-75-8	2-Chloroethyl Vinyl Ether	1000.	U D
74-87-3	Chloromethane	1000.	U D
75-71-8	Dichlorodifluoromethane	1000.	U D
75-69-4	Trichlorofluoromethane	1000.	U D
75-01-4	Vinyl Chloride	1000.	U D
108-86-1	Bromobenzene	520.	U D
75-97-5	Bromochloromethane	520.	U D
75-27-4	Bromodichloromethane	520.	U D
75-25-2	Bromoform	520.	U D
104-51-8	n-Butylbenzene	520.	U D
135-98-8	sec-Butylbenzene	520.	U D
98-06-6	tert-Butylbenzene	520.	U D
75-15-0	Carbon Disulfide	10000.	U D
56-23-5	Carbon Tetrachloride	520.	U D
108-90-7	Chlorobenzene	520.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 2.2 (g/mL) G
Level: (low/med) Low
Dilution Factor: 40
% Moisture: 13.4

Lab Number: D609044-05
Client: TNRCC
Sample ID: SAMPLE #5
Lab File ID: >AT781
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
124-48-1	Chlorodibromomethane	520.	U D
67-66-3	Chloroform	520.	U D
95-49-8	2-Chlorotoluene	520.	U D
106-43-4	4-Chlorotoluene	520.	U D
96-12-8	1,2-Dibromo-3-chloropropane	520.	U D
106-93-4	1,2-Dibromoethane	520.	U D
74-95-3	Dibromomethane	520.	U D
95-50-1	1,2-Dichlorobenzene	520.	U D
541-73-1	1,3-Dichlorobenzene	520.	U D
106-46-7	1,4-Dichlorobenzene	520.	U D
110-57-6	1,4-Dichloro-2-butane	520.	U D
75-34-3	1,1-Dichloroethane	520.	U D
107-06-2	1,2-Dichloroethane	520.	U D
75-35-4	1,1-Dichloroethene	520.	U D
78-87-5	1,2-Dichloropropane	520.	U D
156-59-2	cis-1,2-Dichloroethene	520.	U D
156-60-5	trans-1,2-Dichloroethene	520.	U D
78-87-5	1,2-Dichloropropane	520.	U D
142-28-9	1,3-Dichloropropane	520.	U D
594-20-7	2,2-Dichloropropane	520.	U D
563-58-6	1,1-Dichloropropene	520.	U D
10061-01-5	cis-1,3-Dichloropropene	520.	U D
10061-02-6	trans-1,3-Dichloropropene	520.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 2.2 (g/mL) G
Level: (low/med) Low
Dilution Factor: 40
% Moisture: 13.4

Lab Number: D609044-05
Client: TNRCC
Sample ID: SAMPLE #5
Lab File ID: >AT781
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
97-63-2	Ethyl Methacrylate	520.	U D
87-68-3	Hexachlorobutadiene	520.	U D
98-82-8	Isopropyl benzene (Cumene)	520.	U D
99-87-6	4-Isopropyltoluene	520.	U D
75-09-2	Methylene Chloride	1000.	U D
91-20-3	Naphthalene	870.	D
103-65-1	n-Propylbenzene	520.	U D
100-42-5	Styrene	520.	U D
630-20-6	1,1,1,2-Tetrachloroethane	520.	U D
79-34-5	1,1,2,2-Tetrachloroethane	520.	U D
127-18-4	Tetrachloroethene	520.	U D
87-61-6	1,2,3-Trichlorobenzene	520.	U D
120-82-1	1,2,4-Trichlorobenzene	520.	U D
71-55-6	1,1,1-Trichloroethane	520.	U D
79-00-5	1,1,2-Trichloroethane	520.	U D
79-01-6	Trichloroethene	620.	D
96-18-4	1,2,3-Trichloropropane	520.	U D
95-63-6	1,2,4-Trimethylbenzene	520.	U D
108-67-8	1,3,5-Trimethylbenzene	520.	U D
71-43-2	Benzene	520.	U D
100-41-4	Ethylbenzene	520.	U D
108-88-3	Toluene	520.	U D
133-02-7	Xylene (total)	520.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 1 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 1
% Moisture: 100

Lab Number: D609044-06
Client: TNRCC
Sample ID: SAMPLE#6
Lab File ID: >AT706
Date Received: 09/12/96
Date Analyzed: 9/17/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
67-64-1	Acetone	500.	U
78-93-3	2-Butanone (MEK)	500.	U
107-02-8	Acrolein	250.	U
107-13-1	Acrylonitrile	250.	U
591-78-6	2-Hexanone	250.	U
108-10-1	4-Methyl-2-pentanone (MIBK)	250.	U
108-05-4	Vinyl Acetate	250.	U
74-83-9	Bromomethane	50.	U
75-00-3	Chloroethane	50.	U
110-75-8	2-Chloroethyl Vinyl Ether	50.	U
74-87-3	Chloromethane	50.	U
75-71-8	Dichlorodifluoromethane	50.	U
75-69-4	Trichlorofluoromethane	50.	U
75-01-4	Vinyl Chloride	50.	U
108-86-1	Bromobenzene	25.	U
75-97-5	Bromochloromethane	25.	U
75-27-4	Bromodichloromethane	25.	U
75-25-2	Bromoform	25.	U
104-51-8	n-Butylbenzene	25.	U
135-98-8	sec-Butylbenzene	25.	U
98-06-6	tert-Butylbenzene	25.	U
75-15-0	Carbon Disulfide	500.	U
56-23-5	Carbon Tetrachloride	25.	U
108-90-7	Chlorobenzene	25.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 1 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 1
% Moisture: 100

Lab Number: D609044-06
Client: TNRCC
Sample ID: SAMPLE#6
Lab File ID: >AT706
Date Received: 09/12/96
Date Analyzed: 9/17/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
124-48-1	Chlorodibromomethane	25.	U
67-66-3	Chloroform	25.	U
95-49-8	2-Chlorotoluene	25.	U
106-43-4	4-Chlorotoluene	25.	U
96-12-8	1,2-Dibromo-3-chloropropane	25.	U
106-93-4	1,2-Dibromoethane	25.	U
74-95-3	Dibromomethane	25.	U
95-50-1	1,2-Dichlorobenzene	25.	U
541-73-1	1,3-Dichlorobenzene	25.	U
106-46-7	1,4-Dichlorobenzene	25.	U
110-57-6	1,4-Dichloro-2-butene	25.	U
75-34-3	1,1-Dichloroethane	25.	U
107-06-2	1,2-Dichloroethane	25.	U
75-35-4	1,1-Dichloroethene	25.	U
78-87-5	1,2-Dichloropropane	25.	U
156-59-2	cis-1,2-Dichloroethene	25.	U
156-60-5	trans-1,2-Dichloroethene	25.	U
78-87-5	1,2-Dichloropropane	25.	U
142-28-9	1,3-Dichloropropane	25.	U
594-20-7	2,2-Dichloropropane	25.	U
563-58-6	1,1-Dichloropropene	25.	U
10061-01-5	cis-1,3-Dichloropropene	25.	U
10061-02-6	trans-1,3-Dichloropropene	25.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

106-93-4---------1,2-Dibromoethane	25.	U
74-95-3---------Dibromomethane	25.	U
95-50-1---------1,2-Dichlorobenzene	25.	U
541-73-1--------1,3-Dichlorobenzene	25.	U
106-46-7--------1,4-Dichlorobenzene	25.	U
110-57-6--------1,4-Dichloro-2-butene	25.	U
75-34-3---------1,1-Dichloroethane	25.	U
107-06-2--------1,2-Dichloroethane	25.	U
75-35-4---------1,1-Dichloroethene	25.	U
78-87-5---------1,2-Dichloropropane	25.	U
156-59-2--------cis-1,2-Dichloroethene	25.	U
156-60-5--------trans-1,2-Dichloroethene	25.	U
78-87-5---------1,2-Dichloropropane	25.	U
142-28-9--------1,3-Dichloropropane	25.	U
594-20-7--------2,2-Dichloropropane	25.	U
563-58-6--------1,1-Dichloropropene	25.	U
10061-01-5------cis-1,3-Dichloropropene	25.	U
10061-02-6------trans-1,3-Dichloropropene	25.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 1 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 1
% Moisture: 100

Lab Number: D609044-06
Client: TNRCC
Sample ID: SAMPLE#6
Lab File ID: >AT706
Date Received: 09/12/96
Date Analyzed: 9/17/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
97-63-2	Ethyl Methacrylate	25.	U
87-68-3	Hexachlorobutadiene	25.	U
98-82-8	Isopropyl benzene (Cumene)	25.	U
99-87-6	4-Isopropyltoluene	25.	U
75-09-2	Methylene Chloride	25.	U
91-20-3	Naphthalene	25.	U
103-65-1	n-Propylbenzene	25.	U
100-42-5	Styrene	25.	U
630-20-6	1,1,1,2-Tetrachloroethane	25.	U
79-34-5	1,1,2,2-Tetrachloroethane	25.	U
127-18-4	Tetrachloroethene	25.	U
87-61-6	1,2,3-Trichlorobenzene	25.	U
120-82-1	1,2,4-Trichlorobenzene	25.	U
71-55-6	1,1,1-Trichloroethane	25.	U
79-00-5	1,1,2-Trichloroethane	25.	U
79-01-6	Trichloroethene	25.	U
96-18-4	1,2,3-Trichloropropane	25.	U
95-63-6	1,2,4-Trimethylbenzene	25.	U
108-67-8	1,3,5-Trimethylbenzene	25.	U
71-43-2	Benzene	25.	U
100-41-4	Ethylbenzene	25.	U
108-88-3	Toluene	25.	U
133-02-7	Xylene (total)	25.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 0.01 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 100
% Moisture: 100

Lab Number: D609044-07W
Client: TNRCC
Sample ID: SAMPLE #7
Lab File ID: >AT777
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
67-64-1	Acetone	5000000.	U D
78-93-3	2-Butanone_(MEK)	5000000.	U D
107-02-8	Acrolein	2500000.	U D
107-13-1	Acrylonitrile	2500000.	U D
591-78-6	2-Hexanone	2500000.	U D
108-10-1	4-Methyl-2-pentanone_(MIBK)	2500000.	U D
108-05-4	Vinyl Acetate	2500000.	U D
74-83-9	Bromomethane	500000.	U D
75-00-3	Chloroethane	500000.	U D
110-75-8	2-Chloroethyl_Vinyl_Ether	500000.	U D
74-87-3	Chloromethane	500000.	U D
75-71-8	Dichlorodifluoromethane	500000.	U D
75-69-4	Trichlorofluoromethane	500000.	U D
75-01-4	Vinyl Chloride	500000.	U D
108-86-1	Bromobenzene	250000.	U D
75-97-5	Bromochloromethane	250000.	U D
75-27-4	Bromodichloromethane	250000.	U D
75-25-2	Bromoform	250000.	U D
104-51-8	n-Butylbenzene	250000.	U D
135-98-8	sec-Butylbenzene	250000.	U D
98-06-6	tert-Butylbenzene	250000.	U D
75-15-0	Carbon Disulfide	5000000.	U D
56-23-5	Carbon Tetrachloride	250000.	U D
108-90-7	Chlorobenzene	250000.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 0.01 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 100
% Moisture: 100

Lab Number: D609044-07W
Client: TNRCC
Sample ID: SAMPLE #7
Lab File ID: >AT777
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
124-48-1	Chlorodibromomethane	250000.	U D
67-66-3	Chloroform	250000.	U D
95-49-8	2-Chlorotoluene	250000.	U D
106-43-4	4-Chlorotoluene	250000.	U D
96-12-8	1,2-Dibromo-3-chloropropane	250000.	U D
106-93-4	1,2-Dibromoethane	250000.	U D
71-95-3	Dibromomethane	250000.	U D
95-50-1	1,2-Dichlorobenzene	250000.	U D
541-73-1	1,3-Dichlorobenzene	250000.	U D
106-46-7	1,4-Dichlorobenzene	250000.	U D
110-57-6	1,4-Dichloro-2-butene	250000.	U D
75-34-3	1,1-Dichloroethane	250000.	U D
107-06-2	1,2-Dichloroethane	250000.	U D
75-35-4	1,1-Dichloroethene	250000.	U D
78-87-5	1,2-Dichloropropane	250000.	U D
156-59-2	cis-1,2-Dichloroethene	250000.	U D
156-60-5	trans-1,2-Dichloroethene	250000.	U D
78-87-5	1,2-Dichloropropane	250000.	U D
142-28-9	1,3-Dichloropropane	250000.	U D
594-20-7	2,2-Dichloropropane	250000.	U D
563-58-6	1,1-Dichloropropene	250000.	U D
10061-01-5	cis-1,3-Dichloropropene	250000.	U D
10061-02-6	trans-1,3-Dichloropropene	250000.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 0.01 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 100
% Moisture: 100

Lab Number: D609044-07W
Client: TNRCC
Sample ID: SAMPLE #7
Lab File ID: >AT777
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
97-63-2	Ethyl Methacrylate	250000.	U D
87-68-3	Hexachlorobutadiene	250000.	U D
98-82-8	Isopropyl benzene (Cumene)	250000.	U D
99-87-6	4-Isopropyltoluene	250000.	U D
75-09-2	Methylene Chloride	250000.	U D
91-20-3	Naphthalene	250000.	U D
103-65-1	n-Propylbenzene	250000.	U D
100-42-5	Styrene	250000.	U D
630-20-6	1,1,1,2-Tetrachloroethane	250000.	U D
79-34-5	1,1,2,2-Tetrachloroethane	250000.	U D
127-18-4	Tetrachloroethene	250000.	U D
87-61-6	1,2,3-Trichlorobenzene	250000.	U D
120-82-1	1,2,4-Trichlorobenzene	250000.	U D
71-55-6	1,1,1-Trichloroethane	250000.	U D
79-00-5	1,1,2-Trichloroethane	250000.	U D
79-01-6	Trichloroethene	250000.	U D
96-18-4	1,2,3-Trichloropropane	250000.	U D
95-63-6	1,2,4-Trimethylbenzene	250000.	U D
108-67-8	1,3,5-Trimethylbenzene	250000.	U D
71-43-2	Benzene	250000.	U D
100-41-4	Ethylbenzene	250000.	U D
108-88-3	Toluene	250000.	U D
133-02-7	Xylene (total)	250000.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 1 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 1
% Moisture: 100

Lab Number: D609044-06
Client: TNRCC
Sample ID: SAMPLE#6
Lab File ID: >AT706
Date Received: 09/12/96
Date Analyzed: 9/17/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
124-48-1	Chlorodibromomethane	25.	U
67-66-3	Chloroform	25.	U
95-49-8	2-Chlorotoluene	25.	U
106-43-4	4-Chlorotoluene	25.	U
96-12-8	1,2-Dibromo-3-chloropropane	25.	U
106-93-4	1,2-Dibromoethane	25.	U
74-95-3	Dibromomethane	25.	U
95-50-1	1,2-Dichlorobenzene	25.	U
541-73-1	1,3-Dichlorobenzene	25.	U
106-46-7	1,4-Dichlorobenzene	25.	U
110-57-6	1,4-Dichloro-2-butene	25.	U
75-34-3	1,1-Dichloroethane	25.	U
107-06-2	1,2-Dichloroethane	25.	U
75-35-4	1,1-Dichloroethene	25.	U
78-87-5	1,2-Dichloropropane	25.	U
156-59-2	cis-1,2-Dichloroethene	25.	U
156-60-5	trans-1,2-Dichloroethene	25.	U
78-87-5	1,2-Dichloropropane	25.	U
142-28-9	1,3-Dichloropropane	25.	U
594-20-7	2,2-Dichloropropane	25.	U
563-58-6	1,1-Dichloropropene	25.	U
10061-01-5	cis-1,3-Dichloropropene	25.	U
10061-02-6	trans-1,3-Dichloropropene	25.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 1 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 1
% Moisture: 100

Lab Number: D609044-06
Client: TNRCC
Sample ID: SAMPLE#6
Lab File ID: >AT706
Date Received: 09/12/96
Date Analyzed: 9/17/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
97-63-2	Ethyl Methacrylate	25.	U
87-68-3	Hexachlorobutadiene	25.	U
98-82-8	Isopropyl_benzenc_(Cumene)	25.	U
99-87-6	4-Isopropyltoluene	25.	U
75-09-2	Mcthylene_Chloride	25.	U
91-20-3	Naphthalene	25.	U
103-65-1	n-Propylbenzene	25.	U
100-42-5	Styrene	25.	U
630-20-6	1,1,1,2-Tetrachloroethane	25.	U
79-34-5	1,1,2,2-Tetrachloroethane	25.	U
127-18-4	Tetrachloroethene	25.	U
87-61-6	1,2,3-Trichlorobenzene	25.	U
120-82-1	1,2,4-Trichlorobenzene	25.	U
71-55-6	1,1,1-Trichloroethane	25.	U
79-00-5	1,1,2-Trichloroethane	25.	U
79-01-6	Trichloroethene	25.	U
96-18-4	1,2,3-Trichloropropane	25.	U
95-63-6	1,2,4-Trimethylbenzene	25.	U
108-67-8	1,3,5-Trimethylbenzene	25.	U
71-43-2	Benzene	25.	U
100-41-4	Ethylbenzene	25.	U
108-88-3	Toluene	25.	U
133-02-7	Xylene (total)	25.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 0.01 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 100
% Moisture: 100

Lab Number: D609044-07W
Client: TNRCC
Sample ID: SAMPLE #7
Lab File ID: >AT777
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
67-64-1	Acetone	5000000.	U D
78-93-3	2-Butanone_(MEK)	5000000.	U D
107-02-8	Acrolein	2500000.	U D
107-13-1	Acrylonitrile	2500000.	U D
591-78-6	2-Hexanone	2500000.	U D
108-10-1	4-Methyl-2-pentanone_(MIBK)	2500000.	U D
108-05-4	Vinyl Acetate	2500000.	U D
74-83-9	Bromomethane	500000.	U D
75-00-3	Chloroethane	500000.	U D
110-75-8	2-Chloroethyl_Vinyl_Ether	500000.	U D
74-87-3	Chloromethane	500000.	U D
75-71-8	Dichlorodifluoromethane	500000.	U D
75-69-4	Trichlorofluoromethane	500000.	U D
75-01-4	Vinyl Chloride	500000.	U D
108-86-1	Bromobenzene	250000.	U D
75-97-5	Bromochloromethane	250000.	U D
75-27-4	Bromodichloromethane	250000.	U D
75-25-2	Bromoform	250000.	U D
104-51-8	n-Butylbenzene	250000.	U D
135-98-8	sec-Butylbenzene	250000.	U D
98-06-6	tert-Butylbenzene	250000.	U D
75-15-0	Carbon Disulfide	5000000.	U D
56-23-5	Carbon Tetrachloride	250000.	U D
108-90-7	Chlorobenzene	250000.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 0.01 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 100
% Moisture: 100

Lab Number: D609044-07W
Client: TNRCC
Sample ID: SAMPLE #7
Lab File ID: >AT777
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
124-48-1	Chlorodibromomethane	250000.	U D
67-66-3	Chloroform	250000.	U D
95-49-8	2-Chlorotoluene	250000.	U D
106-43-4	4-Chlorotoluene	250000.	U D
96-12-8	1,2-Dibromo-3-chloropropane	250000.	U D
106-93-4	1,2-Dibromoethane	250000.	U D
74-95-3	Dibromomethane	250000.	U D
95-50-1	1,2-Dichlorobenzene	250000.	U D
541-73-1	1,3-Dichlorobenzene	250000.	U D
106-46-7	1,4-Dichlorobenzene	250000.	U D
110-57-6	1,4-Dichloro-2-butene	250000.	U D
75-34-3	1,1-Dichloroethane	250000.	U D
107-06-2	1,2-Dichloroethane	250000.	U D
75-35-4	1,1-Dichloroethene	250000.	U D
78-87-5	1,2-Dichloropropane	250000.	U D
156-59-2	cis-1,2-Dichloroethene	250000.	U D
156-60-5	trans-1,2-Dichloroethene	250000.	U D
78-87-5	1,2-Dichloropropane	250000.	U D
142-28-9	1,3-Dichloropropane	250000.	U D
594-20-7	2,2-Dichloropropane	250000.	U D
563-58-6	1,1-Dichloropropene	250000.	U D
10061-01-5	cis-1,3-Dichloropropene	250000.	U D
10061-02-6	trans-1,3-Dichloropropene	250000.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 0.01 (g/mL) ml
Level: (low/med) Low
Dilution Factor: 100
% Moisture: 100

Lab Number: D609044-07W
Client: TNRCC
Sample ID: SAMPLE #7
Lab File ID: >AT777
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
97-63-2	Ethyl Methacrylate	250000.	U D
87-68-3	Hexachlorobutadiene	250000.	U D
98-82-8	Isopropyl_benzene_(Cumene)	250000.	U D
99-87-6	4-Isopropyltoluene	250000.	U D
75-09-2	Methylene_Chloride	250000.	U D
91-20-3	Naphthalene	250000.	U D
103-65-1	n-Propylbenzene	250000.	U D
100-42-5	Styrene	250000.	U D
630-20-6	1,1,1,2-Tetrachloroethane	250000.	U D
79-34-5	1,1,2,2-Tetrachloroethane	250000.	U D
127-18-4	Tetrachloroethene	250000.	U D
87-61-6	1,2,3-Trichlorobenzene	250000.	U D
120-82-1	1,2,4-Trichlorobenzene	250000.	U D
71-55-6	1,1,1-Trichloroethane	250000.	U D
79-00-5	1,1,2-Trichloroethane	250000.	U D
79-01-6	Trichloroethene	250000.	U D
96-18-4	1,2,3-Trichloropropane	250000.	U D
95-63-6	1,2,4-Trimethylbenzene	250000.	U D
108-67-8	1,3,5-Trimethylbenzene	250000.	U D
71-43-2	Benzene	250000.	U D
100-41-4	Ethylbenzene	250000.	U D
108-88-3	Toluene	250000.	U D
133-02-7	Xylene (total)	250000.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8260

Lab Name: Maxim Technologies, Inc.
Lab Code: 05-17 Dallas
Matrix: (soil/water) Soil
Sample wt/vol: 0.5 (g/mL) G
Level: (low/med) Low
Dilution Factor: 200
% Moisture: 1

Lab Number: D609044-07S
Client: TNRCC
Sample ID: SAMPLE #7
Lab File ID: >AT782
Date Received: 09/12/96
Date Analyzed: 9/20/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
67-64-1	Acetone	200000.	U D
78-93-3	2-Butanone_(MEK)	200000.	U D
107-02-8	Acrolein	100000.	U D
107-13-1	Acrylonitrile	100000.	U D
591-78-6	2-Hexanone	100000.	U D
108-10-1	4-Methyl-2-pentanone_(MIBK)	100000.	U D
108-05-4	Vinyl Acetate	100000.	U D
74-83-9	Bromomethane	20000.	U D
75-00-3	Chloroethane	20000.	U D
110-75-8	2-Chloroethyl_Vinyl_Ether	20000.	U D
74-87-3	Chloromethane	20000.	U D
75-71-8	Dichlorodifluoromethane	20000.	U D
75-69-4	Trichlorofluoromethane	20000.	U D
75-01-4	Vinyl Chloride	20000.	U D
108-86-1	Bromobenzene	10000.	U D
75-97-5	Bromochloromethane	10000.	U D
75-27-4	Bromodichloromethane	10000.	U D
75-25-2	Bromoform	10000.	U D
104-51-8	n-Butylbenzene	10000.	U D
135-98-8	sec-Butylbenzene	10000.	D
98-06-6	tert-Butylbenzene	10000.	U D
75-15-0	Carbon Disulfide	200000.	U D
56-23-5	Carbon Tetrachloride	10000.	U D
108-90-7	Chlorobenzene	10000.	U D

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

SEP-27-'96 FRI 07:45 ID: SWL/DAL TEL NO:214 920 1831

Reference 23

facsimile
TRANSMITTAL

to: Gary Guerra
fax #: 214-665-7449
re: Jim Miller Landfill Information
date: April 29, 1997
pages: 8, including this cover sheet.

Attached is a copy of the laboratory analysis that you had requested from Mark Duebner with the City Manager's Office on April 29, 1997.

The samples were collected by John Andrus with EmTech Environmental Services, Inc. on March 22, 1997. The samples were taken:

- upstream of the discharge point from the landfill.
- at the discharge point from the landfill (effluent).
- downstream of the discharge point from the landfill.

Armstrong Forensic Laboratory, Inc. performed the analysis.

Please let me know if you need any additional information.

SOWA contact:

From the desk of...

Mike Rickman
Distribution Division Manager
Dallas Water Utilities
4120 Scottsdale
Dallas, TX 75227

214-670-8007
Fax 214-670-8034

RONE ENGINEERS, INC.

11234 Goodnight Lane
Dallas, Texas 75229
Tel. 972/241-4517
Metro: 972/263-1555
Fax. 972/241-5174

TO: Mike Rickman, Dist. Div. Mgr.

COMPANY: City of Dallas - Dallas Water Utilities

FAX NO: (214) 670-8034

SUBJECT: Water Samples - Landfill Fire Project.

FROM: Douglas Cargo

DATE: 4-4-97

COMMENTS: Results indicate only one (1) analysis slightly elevated. Sample #4 Benzene. State limit is 5.0 ppb.

NUMBER OF PAGES SENT INCLUDING THIS ONE: 7

Geotechnical, Environmental, Remediation, Subsurface Investigation, Laboratory Analysis, Project Design, Water Resources, and Building Sciences Professionals

Armstrong Forensic Laboratory, Inc.

330 Loch'n Green Trail Arlington, Texas 76012 (817)275-2691

Andrew T. Armstrong, Ph.D.
John M. Coen, M.S

April 2, 1997

[redacted]
EmTech Environmental Services, Inc.
303 Arthur Street
Fort Worth, TX 76107

Received: March 22, 1997
Submitted: 6 Waters
Project: F94031J

Site: Rone Engineering
City of Dallas
Dallas, TX

LABORATORY REPORT: 97EN1462

Sample No: 1
Client ID: U-01, Upstream 01
Sample Type: Water

TOTAL METALS: RCRA Series

Test Requested	Results ppm(mg/l)	Det. Limits ppm(mg/l)	Method EPA
Arsenic	bdl	0.01	EPA 6010
Barium	0.085	0.001	EPA 6010
Cadmium	bdl	0.001	EPA 6010
Chromium	0.013	0.001	EPA 6010
Lead	0.014	0.002	EPA 6010
Mercury	bdl	0.0007	EPA 7470
Selenium	bdl	0.01	EPA 6010
Silver	0.005	0.002	EPA 6010

bdl - below detection limit

Armstrong Forensic Laboratory, Inc.
Report 97EN1462
Page 2

Sample No: 2
Client ID: U-02, Upstream 02
Sample Type: Water

RCRA VOLATILE ORGANICS: EPA Method 8015

Organic Compound	Results ppb(µg/l)	Det. Limits ppb(µg/l)
Benzene	bdl	0.2
Carbon tetrachloride	bdl	5.0
Chlorobenzene	bdl	0.3
Chloroform	bdl	3.0
1,4-Dichlorobenzene	bdl	0.4
1,2-Dichloroethane	bdl	0.8
1,1-Dichloroethylene	bdl	1.0
Methyl ethyl ketone	bdl	3.0
Tetrachloroethylene	bdl	1.0
Trichloroethylene	bdl	1.0
Vinyl chloride	bdl	50.

bdl - below detection limit

Armstrong Forensic Laboratory, Inc.
Report 97EN1462
Page 3

Sample No: 3
Client ID: E-01, Effluent 01
Sample Type: Water

TOTAL METALS: RCRA Series

Test Requested	Results ppm(mg/l)	Det. Limits ppm(mg/l)	Method EPA
Arsenic	bdl	0.01	EPA 6010
Barium	0.094	0.001	EPA 6010
Cadmium	bdl	0.001	EPA 6010
Chromium	0.005	0.001	EPA 6010
Lead	0.007	0.002	EPA 6010
Mercury	bdl	0.0007	EPA 7470
Selenium	bdl	0.01	EPA 6010
Silver	0.006	0.002	EPA 6010

bdl - below detection limit

Armstrong Forensic Laboratory, Inc.
Report 97EN1462
Page 4

Sample No: 4
Client ID: E-02, Effluent 02
Sample Type: Water

RCRA VOLATILE ORGANICS: EPA Method 8015

Organic Compound	Results ppb(ug/l)	Det. Limits ppb(ug/l)
Benzene	7.1	0.2
Carbon tetrachloride	bdl	5.0
Chlorobenzene	bdl	0.3
Chloroform	bdl	3.0
1,4-Dichlorobenzene	bdl	0.4
1,2-Dichloroethane	bdl	0.8
1,1-Dichloroethylene	bdl	1.0
Methyl ethyl ketone	bdl	3.0
Tetrachloroethylene	bdl	1.0
Trichloroethylene	bdl	1.0
Vinyl chloride	bdl	50.

bdl - below detection limit

Armstrong Forensic Laboratory, Inc.
Report 97EN1462
Page 5

Sample No: 5
Client ID: D-01, Downstream 01
Sample Type: Water

TOTAL METALS: RCRA Series

Test Requested	Results ppm(mg/l)	Det. Limits ppm(mg/l)	Method EPA
Arsenic	bdl	0.01	EPA 6010
Barium	0.037	0.001	EPA 6010
Cadmium	bdl	0.001	EPA 6010
Chromium	0.002	0.001	EPA 6010
Lead	bdl	0.002	EPA 6010
Mercury	bdl	0.0007	EPA 7470
Selenium	bdl	0.01	EPA 6010
Silver	bdl	0.002	EPA 6010

bdl - below detection limit

Armstrong Forensic Laboratory, Inc.
Report 97EN1462
Page 6

Sample No: 6
Client ID: D-02, Downstream 02
Sample Type: Water

RCRA VOLATILE ORGANICS: EPA Method 8015

Organic Compound	Results ppb(ug/l)	Det. Limits ppb(ug/l)
Benzene	bdl	0.2
Carbon tetrachloride	bdl	5.0
Chlorobenzene	bdl	0.3
Chloroform	bdl	3.0
1,4-Dichlorobenzene	bdl	0.4
1,2-Dichloroethane	bdl	0.8
1,1-Dichloroethylene	bdl	1.0
Methyl ethyl ketone	bdl	3.0
Tetrachloroethylene	bdl	1.0
Trichloroethylene	bdl	1.0
Vinyl chloride	bdl	50.

bdl - below detection limit

Joe Sikes, Director, Quality Control
AIHA Accreditation No: 363
AIHA ELLAP Accredited
rw\ectlv\97-1462.doc/af

Reference 24

Kenyon Carlson

United States Environmental Protection Agency

Solid Waste and Emergency Response

EPA 540-F-94-028
OSWER 9285.7-14FS
PB94-963311
November 1996

EPA

Using Qualified Data to Document an Observed Release and Observed Contamination

Office of Emergency and Remedial Response (5204G)

Quick Reference Fact Sheet

This fact sheet discusses the use of the U.S. Environmental Protection Agency's (EPA) Contract Laboratory Program (CLP) data and other sources of data qualified with a "J", "U", or "UJ" qualifier or flag. This guidance provides a management decision tool for the optional use of qualified data to document an observed release and observed contamination by chemical analysis under EPA's Hazard Ranking System (HRS). The analyte and sample matrix (i.e., soil or water) specific adjustment factors given in this fact sheet allow biased CLP and non-CLP data to be adjusted to meet the HRS criteria for documenting an observed release and observed contamination with data that are of known and documented quality. This fact sheet does not address using qualified data for identifying hazardous substances in a source.

INTRODUCTION

The EPA established the HRS to rank hazardous waste sites for National Priorities List (NPL) purposes under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). This fact sheet was developed in response to a need to determine the usability of qualified data for site assessment and HRS scoring purposes. This fact sheet illustrates that qualified data are often of sufficiently known and documented quality, and may be used in establishing an observed release and observed contamination. This fact sheet explains the rationale for why some qualified data may be used for HRS purposes; presents the background information needed to use qualified data with and without adjustment factors; provides examples of qualified data use; and discusses issues raised during the development of the adjustment factor approach.

Under the HRS, chemical analytical data are often used to demonstrate an observed release and observed contamination when the release sample concentration is three times the background concentration and background levels are greater than or equal to the appropriate detection limit; or if the release sample concentration is greater than or equal to the appropriate quantitation limit when background levels are below the appropriate detection limit. The release must also be at least partially attributable to the site under investigation (*Hazard Ranking System, Final Rule*, 40 CFR Part 300, App. A). The data used to establish the release must be of known and documented quality. (*Hazard Ranking System Guidance Manual*, Interim Final, November 1992, OSWER Directive 9345.1-07). Data that cannot be validated may not be of known and documented quality. For more information on observed release and observed contamination, refer to the fact sheets: *Establishing an Observed Release*, September 1995, PB94-963314; *Establishing Areas of Observed Contamination*, September 1995, PB94-963312; and *Establishing Background Levels*, September 1995, PB94-963313. The factor of three represents the minimum difference in sample results that demonstrate an increase in contaminant concentration above background levels, with reasonable confidence.

Although much of the analytical data used for identifying an observed release is generated under EPA's CLP, this fact sheet applies to all data regardless of the source of the data (non-CLP data). EPA procedures require that

CLP analytical data be reviewed, or validated by EPA or third party reviewers, to ensure the data are of known and documented quality and that the determination be discussed in a data validation report that accompanies the analytical results. Based on this data validation, CLP data are classified into three categories: (1) data for which all quality control (QC) requirements have passed contract-required acceptance criteria; (2) data for which at least one QC requirement has not met acceptance criteria; and (3) data for which most or all QC requirements have not met acceptance criteria. Data in the first category typically are not qualified. Data in the second category are often qualified with a "J" qualifier and, as discussed in this fact sheet, are usually usable for HRS purposes. Data in the third category are usually qualified by an "R" qualifier and are not usable for HRS purposes.

Whether data are placed into the second or third category is determined by the amount of bias associated with the analytical results. Data validation evaluates biases resulting from laboratory analytical deficiencies or sample matrices to determine whether the data are usable. Bias indicates that the reported concentration is either higher or lower than the true concentration, and the data validation report identifies the direction of the bias or if the bias is unknown.

The EPA CLP also sets minimum quantitation limits for all analytes; the Contract Required Quantitation Limit (CRQL) for organic analytes and the Contract Required Detection Limit (CRDL) for inorganic analytes. For HRS purposes and for this fact sheet, the term CRQL refers to both the contract required quantitation limit and the contract required detection limit. (40 CFR Part 300, App. A). The CRQLs are substance specific levels that a CLP laboratory must be able to routinely and reliably detect in specific sample matrices (i.e., soil, water, sediment). The CRQLs are usually set above most instrument detection limits (IDLs) and method detection limits (MDLs).

CONSIDERATIONS FOR NON-CLP DATA

Because various laboratories and analytical methods may be used to develop non-CLP data, the following list provides the general information sufficient for determining whether non-CLP data are usable for HRS purposes.

(1) Identification of the method used for analysis. Methods include RCRA methods, SW-846, EPA methods, etc.
(2) Quality control (QC) data. Check each method of analysis to determine if specific QC requirements are defined. If not, seek out another method.
(3) Instrument-generated data sheets for sample results. These data sheets would be the equivalent of Form I's in CLP data.
(4) MDLs and sample quantitation limits (SQLs). The analytical method should provide the MDL. The SQL is an adjusted MDL using sample specific measurements such as percent moisture and weight.
(5) Data validation report.

USE OF BIASED QUALIFIED DATA

In the past, all qualified data have been inappropriately perceived by some people as data of low confidence or poor quality and have not been used for HRS evaluation. With careful assessment of the nature of the analytical biases or QC deficiencies in the data on a case-by-case basis, qualified data can represent an additional resource of data for establishing an observed release. Further, the D.C. District Court of Appeals in 1996 upheld EPA's case-by-case approach to assess data quality. In reviewing the use of qualified data to identify an observed release, the Court stated that if there are deficiencies in the data, "...the appropriate response is to review the deficiencies on a 'case-by-case basis' to determine their impact on 'usability of the data.'" The Court also stated with regards to data quality that, "...EPA does not face a standard of absolute perfection....Rather, it is statutorily required to 'assure, to the maximum extent *feasible,*' that it 'accurately assesses the relative degree of risk' posed by sites" [*Board of Regents of the University of Washington, et al., v. EPA*, No. 95-1324, slip op. at 8-10 (D.C. Cir. June 25, 1996).]

As discussed in this fact sheet, the application of adjustment factors to "J" qualified data can serve as a management decision tool to "adjust," or take into account, the analytical uncertainty in the data indicated by the qualifier, thereby making qualified data usable for HRS evaluation. The use of adjustment factors to account for the larger uncertainty in "J" qualified data is a conservative approach enabling a quantitative comparison of the data for use in documenting an observed release. It should be noted that the use of adjustment factors only addresses analytical variability and does not take into account variabilities which may be introduced during field sampling. Some guidelines for using the adjustment factor approach are discussed in *Exhibit 1*.

CLP QA/QC PROCEDURES

CLP qualifiers are applied to analytical data based on the results of various Quality Assurance/Quality Control (QA/QC) procedures used at the laboratory. EPA analytical methods use a number of QA/QC mechanisms during sample analysis in order to assess qualitative and quantitative accuracy (*Contract Laboratory Program Statement of Work for Inorganic Analyses*, Document No. ILM02.0; *Contract Laboratory Program Statement of Work for Organic Analyses*, Document No. OLM1.8; *Quality Assurance/Quality Control Samples*, Environmental Response Team Quality Assurance Technical Information Bulletin; *Test Methods for Evaluating Solid Waste (SW-846): Physical and Chemical Methods*, Document No. SW-846). To assess data quality, the laboratory uses matrix spikes, matrix spike duplicates, laboratory control samples, surrogates, blanks, laboratory duplicates, and quarterly blind performance evaluation (PE) samples. The Agency assumes that if biases are found in the QA/QC samples, the field sample concentrations may also be biased.

Surrogates are chemically similar to the analytes of interest. They are added or "spiked" at a known concentration into the field samples before analysis. Also, selected target analytes are "spiked" into samples at a specified frequency to assess potential interferences from the sample matrix. These samples are called matrix spikes. Comparison of the known concentration of the surrogates and matrix spikes with their actual analytical results reflects the analytical accuracy. Because the surrogates are expected to behave similarly to the target analytes, they may indicate bias caused by interferences from the sample matrices. These types of interferences from the sample matrix are known as matrix effects (*CLP National Functional Guidelines for Inorganic Data Review*, Publication 9240.1-05-01; *CLP National Functional Guidelines for Organic Data Review*, Publication 9240.1-05; *Test Methods for Evaluating Solid Waste (SW-846): Physical and Chemical Methods*, Document No. SW-846).

Laboratory control samples are zero blind samples which contain known concentrations of specific analytes and are analyzed in the same batch as field samples. Their results are used to measure laboratory accuracy. Blanks are analyzed to detect any extraneous contamination introduced either in the field or in the laboratory.

Laboratory duplicates are created when one sample undergoes two separate analyses. The duplicate results are compared to determine laboratory precision. Quarterly blind PE samples are single blind samples that evaluate the laboratory's capability of performing the specified analytical protocol.

CLP and other EPA analytical methods include specifications for acceptable analyte identification, target analytes, and minimum and maximum percent recovery of the QA/QC compounds. Data are validated according to guidelines which set performance criteria for instrument calibration, analyte identification, and identification and recovery of QA/QC compounds (*CLP Statement of Work and SW-846*). The *National Functional Guidelines for Data Review*, used in EPA validation, was designed for the assessment of data generated under the CLP organic and inorganic analytical protocols (*CLP Statement of Work; National Functional Guidelines for Data Review*). The guidelines do not preclude the validation of field and other non-CLP data. Thus, many EPA Regions have also adapted the *National Functional Guidelines for Data Review* to validate non-CLP data. Data which do not meet the guidelines' performance criteria are qualified to indicate bias or QA/QC deficiencies. The data validation report usually explains why the data were qualified and indicates the bias direction when it can be determined. Validated data that are not qualified are considered unbiased and can be used at their reported numerical value for HRS evaluation.

QUALIFIER DEFINITIONS

Most EPA validation guidelines use the data qualifiers presented in Exhibit 2 (*CLP National Functional Guidelines for Data Review*). Other qualifiers besides these may be used; the validation report should always be checked for the exact list of qualifiers and their meanings.

It should be emphasized that not meeting one or some of the contract required QA/QC acceptance criteria is often an indication that the sample was difficult to analyze, not that there is low confidence in the analysis (i.e., the

EXHIBIT 1
GUIDELINES FOR THE USE OF ADJUSTMENT FACTORS

- The use of adjustment factors identified in this fact sheet is a management tool for the optional use of "J" qualified data generated under CLP or other sources of data to document an observed release.
- Adjusted qualified data should be used with non-qualified data whenever possible.
- EPA maintains a "worst sites first" policy for placing sites on the NPL (*Additional Guidance on "Worst Sites" and "NPL Caliber Sites" to assist in SACM Implementation*, OSWER Directive 9320.2-07).
- EPA Regions should use adjustment factors with discretion on a case-by-case basis and should always carefully consider the use of qualified data in borderline cases.
- Resampling and/or reanalysis may be warranted if qualified data do not appear adequate to document an observed release.
- EPA Regions may substitute higher adjustment factors based on documented, justifiable reasons but may never use a lower adjustment factor value.
- The adjustment factors should only be applied to analytes listed in the tables. These adjustment factors should not be interpolated or extrapolated to develop factors for analytes not listed in the tables.
- The adjustment factors apply only to "J" qualified data above the CRQL.
- Detection below the CRQL is treated as non-quantifiable for HRS purposes.
- "UJ" data may be used under strict circumstances as explained in this fact sheet.
- The adjustment factors only apply to biased "J" qualified data, not to other "J" qualified data.
- The adjustment factors do not apply to "N", "NJ", or "R" qualified data. These data can not be used to document an observed release for HRS purposes.

analysis is "under control" and can be adequate for HRS decision making). Often "J", "U", and "UJ" qualified data fall into this category.

There are instances when qualified data cannot be used since the uncertainty of the results is unknown. For example, violations of laboratory instrument calibration and tuning requirements, and gross violations of holding times reflect the possibility that the results are of unknown quality (i.e., the analysis is "out of control"). Most often these data would be qualified with an "R" or an "N" (not usable for HRS purposes).

USING "U" QUALIFIED DATA

The "U" qualifier simply means that the reported concentration of the analyte was at or below the CRQL–there can be confidence that the true concentration is at or below the quantitation limit. Therefore, "U" qualified data can be used for establishing background levels. If the release sample concentration is above this level, as specified in the HRS, an observed release can be established. The quantitation limit for that analyte could be used as a maximum background concentration if a more conservative background level seems appropriate.

USING "J" QUALIFIED DATA

As discussed previously, some "J" qualified data can be used in establishing an observed release if the uncertainty in the reported values is documented. Qualified data should always be carefully examined by the Regions to determine the reasons for qualification before use in HRS evaluation. Resampling and/or reanalysis may be warranted if qualified data only marginally document an observed release. Whenever possible, qualified data should be used in conjunction with non-qualified data.

As described in Exhibit 2, "J" qualified data indicates that bias has been detected in the sample analysis and although the analyte is definitively present, the reported concentration is an estimate. Depending on the reasons and the direction of bias, with the use of adjustment factors, "J" qualified data can represent data of known and documented quality sufficient for use in establishing an observed release and observed contamination under the HRS.

USING "UJ" QUALIFIED DATA

A combination of the "U" and "J" qualifiers indicates that the reported value may not accurately represent the concentration necessary to positively detect the analyte in the sample. Under limited conditions, "UJ" qualified data can be used to represent background concentrations for establishing an observed release. These conditions are: instances when there is confidence that the background concentration is not detectable above the CRQL, the background concentration is biased high, and the sample measurement establishing the observed release equals or exceeds the CRQL.

DIRECTION OF BIAS IN "J" QUALIFIED DATA

It is important to understand the direction of bias associated with "J" qualified data before using the data to document an observed release. Qualified data may have high, low, or unknown bias. A low bias means that the reported concentration is likely an underestimate of the true concentration. For example, data may be biased low when sample holding times for volatile organic compounds (VOCs) are moderately exceeded or when recovery of QA/QC compounds is significantly less than the amount introduced into the sample. Low surrogate recovery would also indicate a low bias. A high bias means the reported concentration is likely an overestimate of the true concentration. For example, data may be biased high when recovery of QA/QC compounds is significantly higher than the amount in the sample. A bias is unknown when it is impossible to ascertain whether the concentration is an overestimate or an underestimate. For example, an unknown bias could result when surrogate recoveries exceed method recovery criteria and matrix spike/matrix spike duplicate compounds below method recovery criteria fail the relative percent difference (RPD) criteria in the same sample.

Despite the bias, certain qualified data may be used without application of adjustment factors for determining an observed release under certain circumstances. The following are examples of using "J" qualified data without adjustment factors:

- Low bias release samples are likely to be underestimates of true concentrations. If the reported concentration of a low bias release sample is three times above unbiased background levels, these release samples would still meet the HRS criteria. The true concentrations would still be three times above the background level.
- High bias background samples are likely to be overestimates of true concentrations. If the reported concentration of unbiased release samples are three times above the reported background concentration, they would still meet the HRS observed release criteria because they would still be three times above the true background concentration.

The above examples show that both low bias "J" qualified release samples at their reported concentrations and high bias "J" qualified background samples may be used at their reported concentrations in these situations.

High bias release samples may not be used at their reported concentrations because they are an overestimate of true concentrations in this situation; resampling and/or re-analysis of the release samples should be considered. The true difference in the background and release concentrations may be less than the HRS criteria for establishing an observed release. The reported concentration for low bias background concentrations may not be compared to release samples because it is most likely an underestimate of background level; the release sample concentration may not significantly exceed the true background concentration. However, in lieu of re-sampling and/or re-analysis, high bias release data and low bias background data may be used with adjustment factors which compensate for the probable uncertainty in the analyses.

ADJUSTMENT FACTORS FOR BIASED "J" QUALIFIED DATA

Applying adjustment factors to "J" qualified data will enable EPA to be more confident that the increase in contaminant concentrations between the background and

EXHIBIT 2 EPA CLP DATA QUALIFIERS AND THEIR USABILITY FOR DOCUMENTING AN OBSERVED RELEASE	
Usable*	**Not Usable**
"U" The substance or analyte was analyzed for, but no quantifiable concentration was found at or above the CRQL (*CLP National Functional Guidelines for Data Review*).	"N" The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification" (*CLP National Functional Guidelines for Data Review*).
"J" The analyte was positively identified–the associated numerical value is the approximate concentration of the analyte in the sample. The "J" qualifier indicates that one or more QA/QC requirements have not met contract required acceptance criteria, but the instrumentation was functioning properly during the analysis. For example, a "J" qualifier may indicate that the sample was difficult to analyze or that the value may lay near the low end of the linear range of the instrument. "J" data are considered biased, but provide definitive analyte identification (*CLP National Functional Guidelines for Data Review*).	"R" The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte can not be verified and the result has been rejected. A sample result may be qualified with an "R" qualifier when the instrument did not remain "in control" or the stability or sensitivity of the instrument were not maintained during the analysis (*CLP National Functional Guidelines for Data Review*).
"UJ" The analyte was not quantifiable at or above the CRQL. In addition to not being quantifiable, one or more QA/QC requirements have not met contract acceptance criteria (*CLP National Functional Guidelines for Data Review*).	"NJ" The analysis indicates the presence of the analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration (*CLP National Functional Guidelines for Data Review*).

* Usable under certain circumstances as explained in this fact sheet.

release samples is due to a release. The adjustment factors are applied as "safety factors" to compensate for analytical uncertainty, allowing biased data to be used for determining an observed release. Dividing the high bias result by an adjustment factor deflates it from the high end of the acceptable range towards a low bias value. Multiplying a low bias concentration by an adjustment factor inflates it to the high end of the acceptable range.

Tables 1 through 4 (pages 11 - 18) present analyte and matrix-specific adjustment factors to address the analytical uncertainty when determining an observed release using high bias release samples and low bias background data. The factors are derived from percent recoveries of matrix spikes, surrogates, and laboratory control samples in the CLP Analytical Results Database (CARD) from January 1991 to March 1996. A total of 32,447 samples were reviewed for volatile organic analytes; 32,913 samples for semivolatile organic analytes; 59,508 samples for pesticides/PCB analytes; and 5,954 samples for inorganic analytes.

The range of CARD data for each analyte includes 97 percent of all percent recoveries in the database, discarding outliers. The adjustment factors are ratios of percent recovery values at the 98.5 and 1.5 percentiles. The ratios generally show a consistent pattern.

Adjustment factors have been determined for all analytes in the CLP Target Compound List (organic analytes) and Target Analyte List (inorganic analytes). A tiered approach was used to derive the organic adjustment factors. Percent recoveries for surrogates were examined first, followed by matrix spike recoveries. When both matrix spike and surrogate data were available for the same analyte, the larger adjustment factor (representing more extreme high and low percent recoveries) was used. Laboratory control samples were used to calculate the inorganic adjustment factors. Quarterly blind sample data were not used to determine adjustment factors because of the small data set available. A default adjustment factor of 10 was used for analytes when percent recovery data were unavailable.

Adjustment factors do not correct the biased sample concentration to its true value, as such "correction" is not possible. CARD data do not differentiate and quantify individual sources of variation. Instead, the ratio of percentile used to develop adjustment factors represents a "worst-case" scenario. Adjustment factors either inflate background values to the high end of the range or deflate release data to the low end. Therefore, adjustment factors compensate or adjust for the apparent analytical variability when comparing a high bias value to a low bias value (see Exhibit 3).

USING THE ADJUSTMENT FACTORS

This section of the fact sheet demonstrates how adjustment factors can be used with "J" qualified data for HRS scoring purposes, including documentation and detection limit issues.

Documentation Requirements for Using Qualified Data
In using "J" qualified data to determine an observed release, include a discussion of "J" qualifiers from the data validation report and cite it as a reference in the site assessment report or HRS documentation record. If adjustment factors are applied to "J" qualified data, reference and cite this fact sheet. These steps will ensure that the direction of bias is documented and will demonstrate how biases have been adjusted.

Detection Limit Restrictions
Adjustment factors may only be applied to "J" qualified data with concentrations above the CLP CRQL for organics or CRDL for inorganics. "J" qualified data with concentrations below the CRQL can not be used to document an observed release except as specified in the previous section entitled "Using "UJ" Qualified Data."

Application of Factors
Exhibit 3 shows how to apply the factors to "J" qualified data. Multiply low bias background sample results by the analyte-specific adjustment factor or the default factor of 10 when an analyte-specific adjustment factor is not available. The resulting new background value effectively becomes a high bias value that may be used to determine an observed release. Divide high bias release sample data by the analyte-specific adjustment factor or the default factor of 10 when an analyte-specific adjustment factor is not available. The resulting new release sample value effectively becomes a low bias value that may be used to determine an observed release.

Note: High bias background data, low bias release data, and unbiased data may be used at their reported concentrations.

Note: Adjusted release and background values must still meet HRS criteria (e.g., release concentration must be at least three times above background level) to determine an observed release.

Examples Using Trichloroethene in Soil and Water

1. *Release water sample is unbiased, background water sample is unbiased but all data are qualified with a "J" due to an contractual laboratory error not analytical error.*

Background sample value: 12 μg/L (J) *no bias*
Release sample value: 40 μg/L (J) *no bias*

The CRQL for trichloroethene is 10 μg/Kg for soil and 10 μg/L for water.

In this example, the qualification of the data is not related to bias in the reported concentrations. Thus, using adjustment factors is not needed and an observed release is established if all other criteria are met.

2. *Release soil sample data is biased low, background soil sample data is biased high.*

Background sample value: 12 μg/Kg (J) *high bias*
Release sample value: 40 μg/Kg (J) *low bias*

In this example, the direction of bias indicates that the true release value may be higher and the true background value may be lower than reported values. The release sample concentration still exceeds background by more than three times, so an observed release is established, provided all other HRS criteria are met. Using adjustment factors is not needed.

EXHIBIT 3 USE OF ADJUSTMENT FACTORS FOR "J" QUALIFIED DATA		
Type of Sample	**Type of Bias**	**Action Required**
Background Sample	No Bias	None: Use concentration without factor
	Low Bias	Multiply concentration by factor
	High Bias	None: Use concentration without factor
	Unknown Bias	Multiply concentration by factor
Release Sample	No Bias	None: Use concentration without factor
	Low Bias	None: Use concentration without factor
	High Bias	Divide concentration by factor
	Unknown Bias	Divide concentration by factor

3. *Release soil sample data is unbiased, background soil sample is biased low.*

Background sample value: 12 μg/Kg (J) *low bias*
Release sample value: 30 μg/Kg *no bias*

In this example, the true background value is assumed to be less than the reported value; however, an observed release may still be possible. To use the data to establish an observed release, multiply the background sample data value by the adjustment factor given for trichloroethene in soil (2.11). No adjustment factor is needed for the release sample.

New background sample value:
(12 μg/Kg) x (2.11) = 25.32 μg/Kg (J) *high bias*

The release sample concentration does not meet or exceed the new background level by three times, so an observed release is not established.

4. *Release water sample data is biased high, background water sample data is unbiased.*

Background sample value: 15 μg/L *no bias*
Release sample value: 70 μg/L (J) *high bias*

In this example, the true release value may be lower than the reported value; however, an observed release may still be possible. To use the data to establish an observed release, divide the release sample by the adjustment factor for trichloroethene in water (1.66). No adjustment factor is needed for the background sample.

New release sample value:
(70 μg/L) ÷ (1.66) = 42.17 μg/L (J) *low bias*

The new release sample concentration does not meet or exceed the background level by three times, so an observed release is not established.

5. *Release soil sample data has unknown bias; background soil sample data has unknown bias.*

The following example is the most conservative approach to using adjustment factors with qualified data.

Background sample value: 20 μg/Kg (J) *unknown bias*
Release sample value: 325 μg/Kg (J) *unknown bias*

In this example, it is not possible to determine from the reported values if an observed release is possible. To use the data to establish an observed release, divide the release sample value and multiply the background sample value by the adjustment factor given for trichloroethene in soil (2.11).

New release sample value:
(325 μg/Kg) ÷ (2.11) = 154.03 μg/Kg (J) *low bias*

New background sample value:
(20 μg/Kg) x (2.11) = 42.2 μg/Kg (J) *high bias*

The new release sample is at least three times the new background concentration, so an observed release is established, provided all other HRS criteria are met.

ISSUES WITH USING ADJUSTMENT FACTOR APPROACH

Some issues were raised regarding the application of adjustment factors to qualified data during the Agency's internal review process.

One issue is that "J" qualifiers are added to analytical results for many reasons that may or may not affect the accuracy and precision of the analytical result. The application of an adjustment factor to "J" qualified data in which bias is not affected could be considered overly conservative.

All qualified data should be carefully evaluated to determine if the data are biased. Based on the reasons for bias, the use of an adjustment factor should only be considered as a management tool that provides a quick screening of the data for site assessment, not a means for correcting the biased value to a true value. Application of adjustment factors are intended for use with qualified data reported at or above the CRQL and may not be applicable to data which are qualified but technically sound. As stated previously, qualified data should always be carefully reviewed on a case-by-case basis prior to use in HRS evaluation.

Another issue is the validity of "10" as a default adjustment factor. A default adjustment factor of 10 was a policy decision based on the range of adjustment factors and an industry approach. The default was chosen in order to account for the maximum variability regardless of the direction of the bias. Therefore, the default value of 10 is generally considered to be a conservative adjustment factor. EPA reviewed the use of the default value of 10 and determined that this value was conservative.

Even if using adjustment factors is sometimes overly conservative, this approach is preferable to not using the data at all. EPA maintains a "worst sites first" policy that only the sites considered most harmful to human health and/or the environment should be listed. EPA considers the use of adjustment factors appropriate as a management decision tool. However, discretion is needed when applying adjustment factors. The use of adjustment factors may not be appropriate in all cases.

USE OF OTHER ADJUSTMENT FACTORS

EPA Regions may substitute higher, but never lower, adjustment factor values for the ones listed in this fact sheet on a case-by-case basis when technically justified. For example, other adjustment factors may be applied to conform with site-specific Data Quality Objectives (DQOs) or with Regional Standard Operating Procedures (SOPs) (*Data Quality Objectives Process for Superfund*, Publication 9355.9-01).

SUMMARY

For site assessment purposes, EPA Regions should not automatically discard "J" qualified data. However, site-specific data usability determinations may result in the data's not being used.

Data qualified under the EPA's CLP or from other sources of validated data may be used to demonstrate an observed release if certain measures are taken to ensure that the bias of the data qualifier is adjusted using the factor approach specified in this fact sheet. (This fact sheet provides a management decision tool for making qualified data usable for documenting an observed release.) The analyte and matrix-specific adjustment factors provided in Tables 1 through 4 of this fact sheet present these adjustment factors.

The scope of this fact sheet is limited to the situations described in Exhibit 1. The use of qualified analytical data without the adjustment factors presented in this fact sheet is limited. Higher adjustment factors may be substituted by EPA Regions on a case-by-case basis when technically justified by site-specific DQOs or SOPs.

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TABLE 1 FACTORS FOR VOLATILE ORGANIC ANALYTES				
	SOIL MATRIX		WATER MATRIX	
VOLATILE ORGANIC ANALYTES	Number of CARD Samples Reviewed	Factor	Number of CARD Samples Reviewed	Factor
1,1,1-TRICHLOROETHANE	—	10.0	—	10.0
1,1,2,2-TETRACHLOROETHANE	—	10.0	—	10.0
1,1,2-TRICHLOROETHANE	—	10.0	—	10.0
1,1-DICHLOROETHANE	—	10.0	—	10.0
1,1-DICHLOROETHENE	7,031	2.71	5,015	2.35
1,2-DICHLOROETHANE-D4	32,446	1.52	25,516	1.38
1,2-DICHLOROETHENE (TOTAL)	—	10.0	—	10.0
1,2-DICHLOROPROPANE	—	10.0	—	10.0
2-BUTANONE	—	10.0	—	10.0
2-HEXANONE	—	10.0	—	10.0
4-METHYL-2-PENTANONE	—	10.0	—	10.0
ACETONE	—	10.0	—	10.0
BENZENE	7,024	1.97	5,001	1.64
BROMODICHLOROMETHANE	—	10.0	—	10.0
BROMOFORM	—	10.0	—	10.0
BROMOFLUOROBENZENE	32,444	1.7	25,518	1.26
BROMOMETHANE	—	10.0	—	10.0
CARBON DISULFIDE	—	10.0	—	10.0

TABLE 1
FACTORS FOR VOLATILE ORGANIC ANALYTES

VOLATILE ORGANIC ANALYTES	SOIL MATRIX		WATER MATRIX	
	Number of CARD Samples Reviewed	Factor	Number of CARD Samples Reviewed	Factor
CARBON TETRACHLORIDE	—	10.0	—	10.0
CHLOROBENZENE	7,018	2.0	5,015	1.54
CHLOROETHANE	—	10.0	—	10.0
CHLOROFORM	—	10.0	—	10.0
CHLOROMETHANE	—	10.0	—	10.0
CIS-1,3-DICHLOROPROPENE	—	10.0	—	10.0
DIBROMOCHLOROMETHANE	—	10.0	—	10.0
ETHYLBENZENE	—	10.0	—	10.0
METHYLENE CHLORIDE	—	10.0	—	10.0
STYRENE	—	10.0	—	10.0
TETRACHLOROETHENE	—	10.0	—	10.0
TOLUENE-D8	32,447	1.63	25,526	1.21
TRANS-1,3-DICHLOROPROPENE	—	10.0	—	10.0
TRICHLOROETHENE	6,988	2.11	4,938	1.66
VINYL CHLORIDE	—	10.0	—	10.0
XYLENE (TOTAL)	—	10.0	—	10.0

TABLE 2
FACTORS FOR SEMIVOLATILE ORGANIC ANALYTES

SEMIVOLATILE ORGANIC ANALYTES	SOIL MATRIX		WATER MATRIX	
	Number of CARD Samples Reviewed	Factor	Number of CARD Samples Reviewed	Factor
1,2,4-TRICHLOROBENZENE	6,792	4.83	4,605	3.71
1,2-DICHLOROBENZENE-D4	32,848	4.22	21,506	3.0
1,3-DICHLOROBENZENE	—	10.0	—	10.0
1,4-DICHLOROBENZENE	6,796	6.0	4,599	3.85
2,2'-OXYBIS(1-CHLOROPROPANE)	—	10.0	—	10.0
2,4,6-TRIBROMOPHENOL	32,605	9.38	21,509	3.57
2,4,5-TRICHLOROPHENOL	—	10.0	—	10.0
2,4,6-TRICHLOROPHENOL	—	10.0	—	10.0
2,4-DICHLOROPHENOL	—	10.0	—	10.0
2,4-DIMETHYLPHENOL	—	10.0	—	10.0
2,4-DINITROPHENOL	—	10.0	—	10.0
2,4-DINITROTOLUENE	6,798	4.88	4,623	3.52
2,6-DINITROTOLUENE	—	10.0	—	10.0
2-CHLORONAPHTHALENE	—	10.0	—	10.0
2-CHLOROPHENOL-D4	32,798	4.08	21,506	2.92
2-FLUOROBIPHENYL	32,913	3.38	21,532	2.84
2-FLUORPHENOL	32,781	5.05	21,511	3.34
2-METHYLNAPHTHALENE	—	10.0	—	10.0
2-METHYLPHENOL	—	10.0	—	10.0
2-NITROANILINE	—	10.0	—	10.0
2-NITROPHENOL	—	10.0	—	10.0
3,3'-DICHLOROBENZIDINE	—	10.0	—	10.0
3-NITROANILINE	—	10.0	—	10.0
4,6-DINITRO-2-METHYLPHENOL	—	10.0	—	10.0
4-BROMOPHENYL-PHENYLETHER	—	10.0	—	10.0

TABLE 2 FACTORS FOR SEMIVOLATILE ORGANIC ANALYTES				
	SOIL MATRIX		WATER MATRIX	
SEMIVOLATILE ORGANIC ANALYTES	Number of CARD Samples Reviewed	Factor	Number of CARD Samples Reviewed	Factor
4-CHLORO-3-METHYLPHENOL	6,715	6.26	4,609	4.46
4-CHLOROANILINE	—	10.0	—	10.0
4-CHLOROPHENYL-PHENYLETHER	—	10.0	—	10.0
4-METHYLPHENOL	—	10.0	—	10.0
4-NITROANILINE	—	10.0	—	10.0
4-NITROPHENOL	6,627	9.33	4,586	5.96
ACENAPHTHENE	6,773	4.68	4,600	3.63
ACENAPHTHYLENE	—	10.0	—	10.0
ANTHRACENE	—	10.0	—	10.0
BENZO(A)ANTHRACENE	—	10.0	—	10.0
BENZO(A)PYRENE	—	10.0	—	10.0
BENZO(B)FLUORANTHENE	—	10.0	—	10.0
BENZO(G,H,I)PERYLENE	—	10.0	—	10.0
BENZO(K)FLUORANTHENE	—	10.0	—	10.0
BIS(2-CHLOROETHOXY)METHANE	—	10.0	—	10.0
BIS(2-CHLOROETHYL)ETHER	—	10.0	—	10.0
BIS(2-ETHYLHEXYL)PHTHALATE	—	10.0	—	10.0
BUTYLBENZYLPHTHALATE	—	10.0	—	10.0
CARBAZOLE	—	10.0	—	10.0
CHRYSENE	—	10.0	—	10.0
DI-N-BUTYLPHTHALATE	—	10.0	—	10.0
DI-N-OCTYLPHTHALATE	—	10.0	—	10.0
DIBENZ(A,H)ANTHRACENE	—	10.0	—	10.0
DIBENZOFURAN	—	10.0	—	10.0
DIETHYLPHTHALATE	—	10.0	—	10.0

TABLE 2 FACTORS FOR SEMIVOLATILE ORGANIC ANALYTES				
SEMIVOLATILE ORGANIC ANALYTES	SOIL MATRIX		WATER MATRIX	
	Number of CARD Samples Reviewed	Factor	Number of CARD Samples Reviewed	Factor
DIMETHYLPHTHALATE	—	10.0	—	10.0
FLUORANTHENE	—	10.0	—	10.0
FLUORENE	—	10.0	—	10.0
HEXACHLOROBENZENE	—	10.0	—	10.0
HEXACHLOROBUTADIENE	—	10.0	—	10.0
HEXACHLOROCYCLOPENTADIENE	—	10.0	—	10.0
HEXACHLOROETHANE	—	10.0	—	10.0
INDENO(1,2,3-CD)PYRENE	—	10.0	—	10.0
ISOPHORONE	—	10.0	—	10.0
N-NITROSO-DI-N-PROPYLAMINE	6,725	4.92	4,513	4.0
N-NITROSODIPHENYLAMINE(1)	—	10.0	—	10.0
NAPHTHALENE	—	10.0	—	10.0
NITROBENZENE-D5	32,867	3.96	21,533	2.73
PENTACHLOROPHENOL	6,597	72.5	4,550	10.12
PHENANTHRENE	—	10.0	—	10.0
PHENOL-D5	32,855	3.85	21,489	3.53
PYRENE	6,543	11.86	4,612	5.67
TERPHENYL-D14	32,899	4.35	21,541	6.32

TABLE 3 FACTORS FOR PESTICIDES/PCB ANALYTES				
	SOIL MATRIX		WATER MATRIX	
VOLATILE ORGANIC ANALYTES	Number of CARD Samples Reviewed	Factor	Number of CARD Samples Reviewed	Factor
4,4'-DDD	—	10.0	—	10.0
4,4'-DDE	—	10.0	—	10.0
4,4'-DDT	5,343	12.82	3,850	7.14
ALDRIN	5,526	14.26	3,829	6.63
ALPHA-BHC	—	10.0	—	10.0
ALPHA-CHLORDANE	—	10.0	—	10.0
AROCLOR-1016	—	10.0	—	10.0
AROCLOR-1221	—	10.0	—	10.0
AROCLOR-1232	—	10.0	—	10.0
AROCLOR-1242	—	10.0	—	10.0
AROCLOR-1248	—	10.0	—	10.0
AROCLOR-1254	—	10.0	—	10.0
AROCLOR-1260	—	10.0	—	10.0
BETA-BHC	—	10.0	—	10.0
DECACHLOROBIPHENYL	57,315	17.79	33,592	10.0
DELTA-BHC	—	10.0	—	10.0
DIELDRIN	5,539	11.93	3,861	4.87

TABLE 3
FACTORS FOR PESTICIDES/PCB ANALYTES

VOLATILE ORGANIC ANALYTES	SOIL MATRIX		WATER MATRIX	
	Number of CARD Samples Reviewed	Factor	Number of CARD Samples Reviewed	Factor
ENDOSULFAN I	—	10.0	—	10.0
ENDOSULFAN II	—	10.0	—	10.0
ENDOSULFAN SULFATE	—	10.0	—	10.0
ENDRIN	5,521	14.13	3,850	5.33
ENDRIN ALDEHYDE	—	10.0	—	10.0
ENDRIN KETONE	—	10.0	—	10.0
GAMMA-BHC (LINDANE)	5,545	11.79	3,832	10.0
GAMMA-CHLORDANE	—	10.0	—	10.0
HEPTACHLOR	5,548	7.88	3,836	5.26
HEPTACHLOR EPOXIDE	—	10.0	—	10.0
METHOXYCHLOR	—	10.0	—	10.0
TETRACHLORO-M-XYLENE	59,508	8.5	33,787	5.29
TOXAPHENE	—	10.0	—	10.0

TABLE 4 FACTORS FOR INORGANIC ANALYTES				
	SOIL MATRIX		WATER MATRIX	
INORGANIC ANALYTES	Number of CARD Samples Reviewed	Factor	Number of CARD Samples Reviewed	Factor
ALUMINUM	5387	1.66	6208	1.30
ANTIMONY	5392	1.98	6170	1.27
ARSENIC	5675	1.74	6303	1.35
BARIUM	5360	3.99	6201	1.25
BERYLLIUM	5399	1.28	6208	1.25
CADMIUM	5385	1.41	6166	1.29
CALCIUM	5383	1.28	6201	1.24
CHROMIUM	5389	1.29	6210	1.30
COBALT	5392	1.25	6212	1.27
COPPER	5394	1.22	6205	1.25
CYANIDE	3281	1.55	225	1.36
IRON	5391	1.34	6216	1.27
LEAD	5982	1.44	6384	1.31
MAGNESIUM	5397	1.23	6210	1.24
MANGANESE	5395	1.24	6214	1.28
MERCURY	5954	1.83	256	1.50
NICKEL	5400	1.35	6210	1.29
POTASSIUM	3874	17.49	6175	1.24
SELENIUM	5620	2.38	6278	1.41
SILVER	5392	1.74	6215	1.42
SODIUM	5024	25.43	6195	1.26
THALLIUM	5621	1.86	6253	1.37
VANADIUM	5393	1.34	6212	1.25
ZINC	5404	1.50	6224	1.29

Reference 25

STATEMENT OF WORK
FOR
SAMPLE ANALYSIS (ORGANIC AND INORGANIC)

MULTI-MEDIA
MULTI-CONCENTRATION

June 1995

Prepared by:

Ecology and Environment, Inc.
Technical Assistance Team
EPA Region 6

TABLE 1
VOLATILE TARGET COMPOUND LIST AND REQUIRED QUANTITATION LIMITS

Analyte	CAS#	QUANTITATION LIMIT Water ug/L	Low Soil ug/Kg	Med/High Soil/Waste ug/Kg
1. Chloromethane	74-87-3	10	10	1200
2. Bromomethane	74-83-9	10	10	1200
3. Vinyl Chloride	75-01-4	10	10	1200
4. Chloroethane	75-00-3	10	10	1200
5. Methylene chloride	75-09-2	10	10	1200
6. Acetone	67-64-1	10	10	1200
7. Carbon disulfide	75-15-0	10	10	1200
8. 1,1-Dichloroethene	75-35-4	10	10	1200
9. 1,1-Dichloroethane	75-34-3	10	10	1200
10. 1,2-Dichloroethene (total)	540-59-0	10	10	1200
11. Chloroform	67-66-3	10	10	1200
12. 1,2-Dichloroethane	107-06-2	10	10	1200
13. 2-Butanone	78-93-3	10	10	1200
14. 1,1,1-Trichloroethane	71-55-6	10	10	1200
15. Carbon tetrachloride	56-23-5	10	10	1200
16. Bromodichloromethane	75-27-4	10	10	1200
17. 1,2-Dichloropropane	78-87-5	10	10	1200
18. cis-1,3-Dichloropropene	10061-01-5	10	10	1200
19. Trichloroethene	79-01-6	10	10	1200
20. Dibromochloromethane	124-48-1	10	10	1200
21. 1,1,2-Trichloroethane	79-00-5	10	10	1200
22. Benzene	71-43-2	10	10	1200
23. trans-1,3-Dichloropropene	10061-02-6	10	10	1200
24. Bromoform	75-25-2	10	10	1200
25. 4-Methyl-2-pentanone	108-10-1	10	10	1200
26. 2-Hexanone	591-78-6	10	10	1200
27. Tetrachloroethene	127-18-4	10	10	1200
28. Toluene	108-88-3	10	10	1200
29. 1,1,2,2-Tetrachloroethane	79-34-5	10	10	1200
30. Chlorobenzene	108-90-7	10	10	1200
31. Ethyl benzene	100-41-4	10	10	1200
32. Styrene	100-42-5	10	10	1200
33. Xylenes (total)	1330-20-7	10	10	1200

TABLE 4
SEMI-VOLATILE TARGET COMPOUND LIST AND REQUIRED QUANTITATION LIMITS

		QUANTITATION LIMIT		
			Low	Med/High
		Water	Soil	Soil/Waste
Analyte	CAS#	ug/L	ug/Kg	ug/Kg
1. Phenol	108-95-2	10	330	10000
2. bis(2-Chloroethyl) ether	111-44-4	10	330	10000
3. 2-Chlorophenol	95-57-8	10	330	10000
4. 1,3-Dichlorobenzene	541-73-1	10	330	10000
5. 1,4-Dichlorobenzene	106-46-7	10	330	10000
6. 1,2-Dichlorobenzene	95-50-1	10	330	10000
7. 2-Methylphenol	95-48-7	10	330	10000
8. 2,2'-oxybis(1-Chloropropane)	108-60-1	10	330	10000
9. 4-Methylphenol	106-44-5	10	330	10000
10. N-Nitroso-di-n-propylamine	621-64-7	10	330	10000
11. Hexachloroethane	67-72-1	10	330	10000
12. Nitrobenzene	98-95-3	10	330	10000
13. Isophorone	78-59-1	10	330	10000
14. 2-Nitrophenol	88-75-5	10	330	10000
15. 2,4-Dimethylphenol	105-67-9	10	330	10000
16. bis(2-Chloroethoxy)methane	111-91-1	10	330	10000
17. 2,4-Dichlorophenol	120-83-2	10	330	10000
18. 1,2,4-Trichlorobenzene	120-82-1	10	330	10000
19. Naphthalene	91-20-3	10	330	10000
20. 4-Chloroaniline	106-47-8	10	330	10000
21. Hexachlorobutadiene	87-68-3	10	330	10000
22. 4-Chloro-3-methylphenol	59-50-7	10	330	10000
23. 2-Methylnaphthalene	91-57-6	10	330	10000
24. Hexachlorocyclopentadiene	77-47-4	10	330	10000
25. 2,4,6-Trichlorophenol	88-06-2	10	330	10000
26. 2,4,5-Trichlorophenol	95-95-4	25	800	25000
27. 2-Chloronaphthalene	91-58-7	10	330	10000
28. 2-Nitroaniline	88-74-4	25	800	25000
29. Dimethylphthalate	131-11-3	10	330	10000
30. Acenaphthylene	208-96-8	10	330	10000
31. 2,6-Dinitrotoluene	606-20-2	10	330	10000
32. 3-Nitroaniline	99-09-2	25	800	25000
33. Acenaphthene	83-32-9	10	330	10000
34. 2,4-Dinitrophenol	51-28-5	25	800	25000
35. 4-Nitrophenol	100-02-7	25	800	25000

TABLE 4 (cont)

36. Dibenzofuran	132-64-9	10	330	10000
37. 2,4-Dinitrotoluene	121-14-2	10	330	10000
38. Diethylphthalate	84-66-2	10	330	10000
39. 4-Chlorophenyl-phenylether	7005-72-3	10	330	10000
40. Fluorene	86-73-7	10	330	10000
41. 4-Nitroaniline	100-01-6	25	800	25000
42. 4,6-Dinitro-2-methylphenol	534-52-1	25	800	25000
43. N-Nitrosodiphenylamine	86-30-6	10	330	10000
44. 4-Bromophenyl-phenylether	101-55-3	10	330	10000
45. Hexachlorobenzene	118-74-1	10	330	10000
46. Pentachlorophenol	87-86-5	25	800	25000
47. Phenanthrene	85-01-8	10	330	10000
48. Anthracene	120-12-7	10	330	10000
49. Carbazole	86-74-8	10	330	10000
50. Di-n-butylphthalate	84-74-2	10	330	10000
51. Fluoranthene	206-44-0	10	330	10000
52. Pyrene	129-00-0	10	330	10000
53. Butylbenzylphthalate	85-68-7	10	330	10000
54. 3,3'Dichlorobenzidine	91-94-1	10	330	10000
55. Benzo(a)anthracene	56-55-3	10	330	10000
56. Chrysene	218-01-9	10	330	10000
57. bis(2-Ethylhexyl)phthalate	117-81-7	10	330	10000
58. Di-n-octylphthalate	117-84-0	10	330	10000
59. Benzo(b)fluoranthene	205-99-2	10	330	10000
60. Benzo(k)fluoranthene	207-08-9	10	330	10000
61. Benzo(a)pyrene	50-32-8	10	330	10000
62. Indeno(1,2,3-cd)pyrene	193-39-5	10	330	10000
63. Dibenz(a,h)anthracene	53-70-3	10	330	10000
64. Benzo(g,h,i)perylene	191-24-2	10	330	10000

TABLE 7
PESTICIDE/PCB TARGET COMPOUND LIST
AND REQUIRED QUANTITATION LIMITS

		QUANTITATION LIMIT		
Analyte	**CAS#**	**Water ug/L**	**Soil ug/Kg**	**Waste ug/Kg**
1. alpha-BHC	319-84-6	0.05	1.7	50
2. beta-BHC	319-85-7	0.05	1.7	50
3. delta-BHC	319-86-8	0.05	1.7	50
4. gamma-BHC (Lindane)	58-89-9	0.05	1.7	50
5. Heptachlor	76-44-8	0.05	1.7	50
6. Aldrin	309-00-2	0.05	1.7	50
7. Heptachlor epoxide	1024-57-3	0.05	1.7	50
8. Endosulfan I	959-98-8	0.05	1.7	50
9. Dieldrin	60-57-1	0.10	3.3	100
10. 4,4'-DDE	72-55-9	0.10	3.3	100
11. Endrin	72-20-8	0.10	3.3	100
12. Endosulfan II	33213-65-9	0.10	3.3	100
13. 4,4'-DDD	72-54-8	0.10	3.3	100
14. Endosulfan sulfate	1031-07-8	0.10	3.3	100
15. 4,4'-DDT	50-29-3	0.10	3.3	100
16. Methoxychlor	72-43-5	0.50	17.0	500
17. Endrin ketone	53494-70-5	0.10	3.3	100
18. Endrin aldehyde	7421-36-3	0.10	3.3	100
19. alpha-Chlordane	5103-71-9	0.05	1.7	50
20. gamma-Chlordane	5103-74-2	0.05	1.7	50
21. Toxaphene	8001-35-2	5.0	170.0	5000
22. Aroclor-1016	12674-11-2	1.0	33.0	1000
23. Aroclor-1221	11104-28-2	2.0	67.0	2000
24. Aroclor-1232	11141-16-5	1.0	33.0	1000
25. Aroclor-1242	53469-21-9	1.0	33.0	1000
26. Aroclor-1248	12672-29-6	1.0	33.0	1000
27. Aroclor-1254	11097-69-1	1.0	33.0	1000
28. Aroclor-1260	11096-82-5	1.0	33.0	1000

TABLE 10

INORGANIC TARGET ANALYTE LIST AND REQUIRED DETECTION LIMITS

ANALYTE	CAS	WATER ug/L	SOIL/WASTE mg/Kg
Aluminum	7429-90-5	200	40
Antimony	7440-36-0	60	12
Arsenic	7440-38-2	10	2
Barium	7440-39-3	200	40
Beryllium	7440-41-7	5	1
Cadmium	7440-43-9	5	1
Calcium	7440-70-2	5000	1000
Chromium	7440-47-3	10	2
Cobalt	7440-48-4	50	10
Copper	7440-50-8	25	5
Iron	7439-89-6	100	20
Lead	7429-92-1	3	0.6
Magnesium	7439-95-4	5000	1000
Manganese	7439-96-5	15	3
Mercury	7439-97-6	0.2	0.1
Nickel	7440-02-0	40	8
Potassium	7440-09-7	5000	1000
Selenium	7782-49-2	5	1
Silver	7440-22-4	10	2
Sodium	7440-23-5	5000	1000
Thallium	7440-28-0	10	2
Vanadium	7440-62-2	50	10
Zinc	7440-66-6	20	4
Cyanide		10	0.5

Reference 26

Report 269

OCCURRENCE, AVAILABILITY, AND CHEMICAL QUALITY OF GROUND WATER IN THE CRETACEOUS AQUIFERS OF NORTH-CENTRAL TEXAS

Volume 1

DEPARTMENT OF WATER RESOURCES

Table 1.—Stratigraphic Units and Their Water-bearing Properties

Yield, in gallons per minute (gal/min): small, less than 100 gal/min; moderate, 100–1,000 gal/min; large, more than 1,000 gal/min.

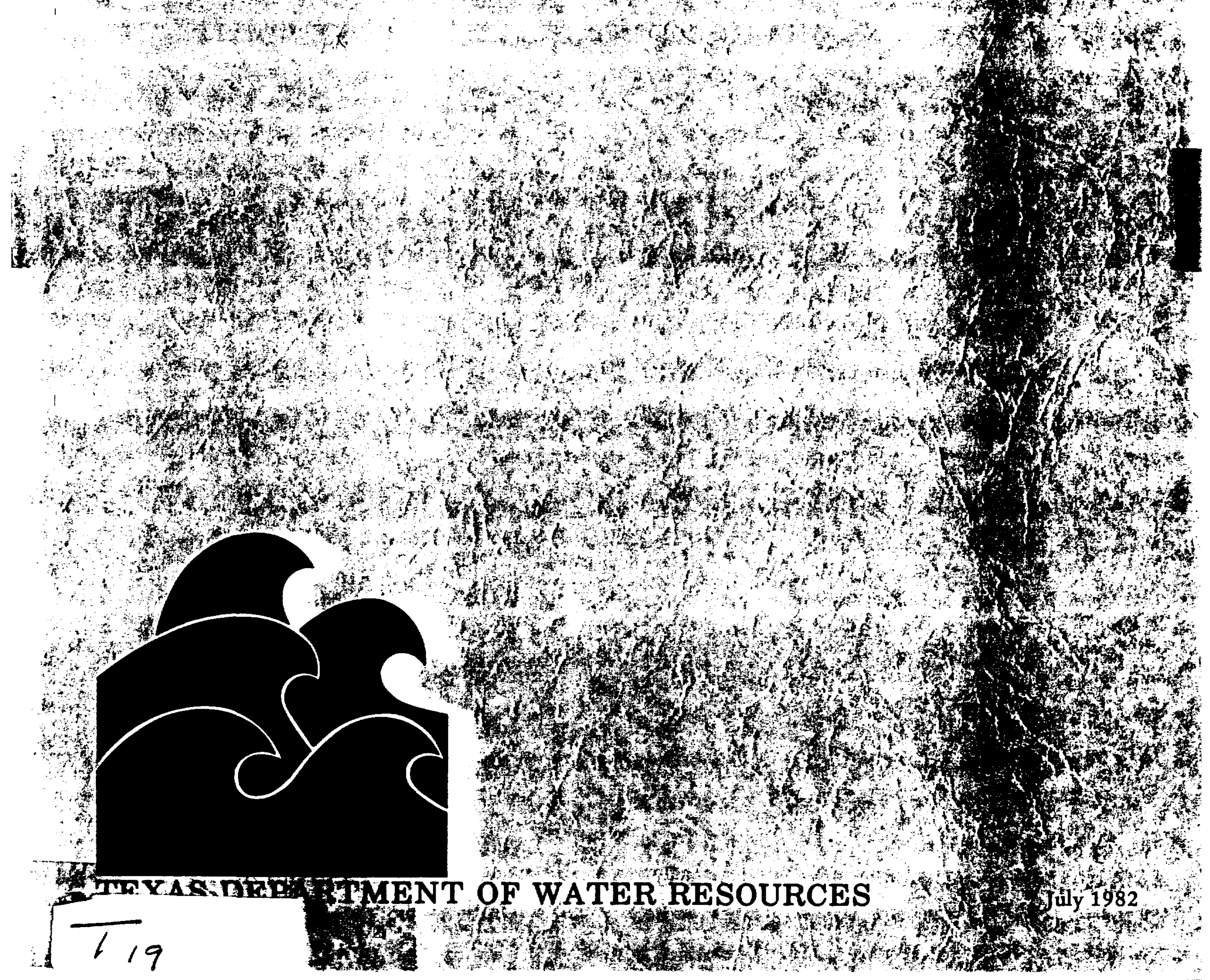
Era	System	Series	Group	Stratigraphic units	Approximate maximum thickness (feet)	Character of rocks	Water-bearing characteristics
Cenozoic	Quaternary	Recent		Alluvium	75	Sand, silt, clay and gravel.	Yields small to large amounts of water to wells along the Red River
		Pleistocene		*Fluviatile terrace deposits*			
	Tertiary	Eocene	Wilcox		100	Fine to medium sand with silt and clay	Yields small quantities of water to wells in the eastern part of the area.
		Paleocene	Midway		150	Gray, calcareous clay, in part silty to sandy	Do.
Mesozoic	Cretaceous	Gulf	Navarro	Kemp Clay *Corsicana Marl*	300	Fossiliferous clay and hard limy *marl*	Not known to yield water to wells in the area.
				Nacatoch Sand	500	Fine sand and marl, fossiliferous	Yields small to moderate quantities of water *near the outcrop.*
			Taylor	Marlbrook Marl *Pecan Gap Chalk* Wolfe City - Ozan Formations	1,500	Clay, marl, mudstone, and chalk	Yields small quantities of water to shallow wells.
			Austin	Gober Chalk Brownstown Marl Blossom Sand Bonham Formation	700	Chalk, limestone, and marl; fine to medium sand, fossiliferous	Yields small to moderate quantities of water to wells in the northeastern part of the area; very limited as an aquifer.
			Eagle Ford		650	Shale with thin beds of sandstone and limestone	Yields small quantities of water to shallow wells.
			Woodbine		700	Medium to coarse iron sand, sandstone, clay and some lignite	Yields moderate to large quantities of water to municipal, industrial and irrigation wells.
		Comanche	Washita	Grayson Marl - Mainstreet Limestone Pawpaw Formation - Weno Limestone - Denton Clay Fort Worth - Duck Creek Kiamichi Formation	1,000	Fossiliferous limestone, marl, and clay; some sand near top	Yields small quantities of water to shallow wells.
			Fredericksburg	Edwards Limestone Comanche Peak Formation — Goodland Limestone Walnut Formation	250	Limestone, clay, marl, shale, and shell agglomerates	Do.
			Trinity	Antlers Formation — Paluxy Formation	900 — 400	Fine sand, sandy shale, and shale	Yields small to moderate quantities of water to wells.
				Antlers Formation — Glen Rose Formation	900 — 1,500	Limestone, marl, shale, and anhydrite	Yields small quantities of water in localized areas.
				Antlers Formation — Twin Mountains Formation	900 — 1,000	Fine to coarse sand, shale, clay, and basal gravel and conglomerate	Yields moderate to large quantities of water to wells.
Paleozoic				Paleozoic rocks undifferentiated		Sandstone, limestone, shale and conglomerate	Yields small quantities of water in the western part of the area.

Reference 27

Report 269

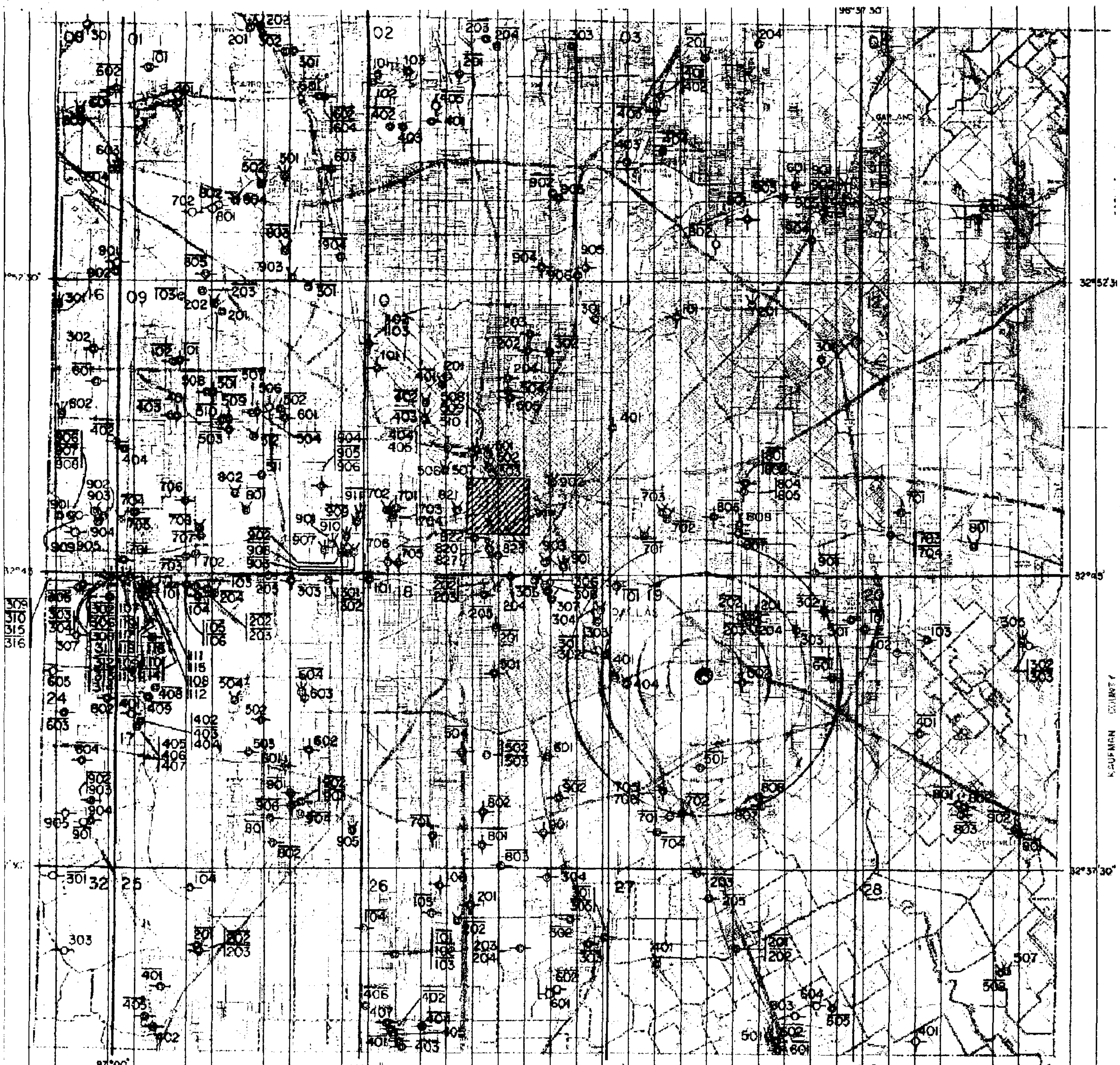
OCCURRENCE, AVAILABILITY, AND CHEMICAL QUALITY OF GROUND WATER IN THE CRETACEOUS AQUIFERS OF NORTH-CENTRAL TEXAS

Volume 2



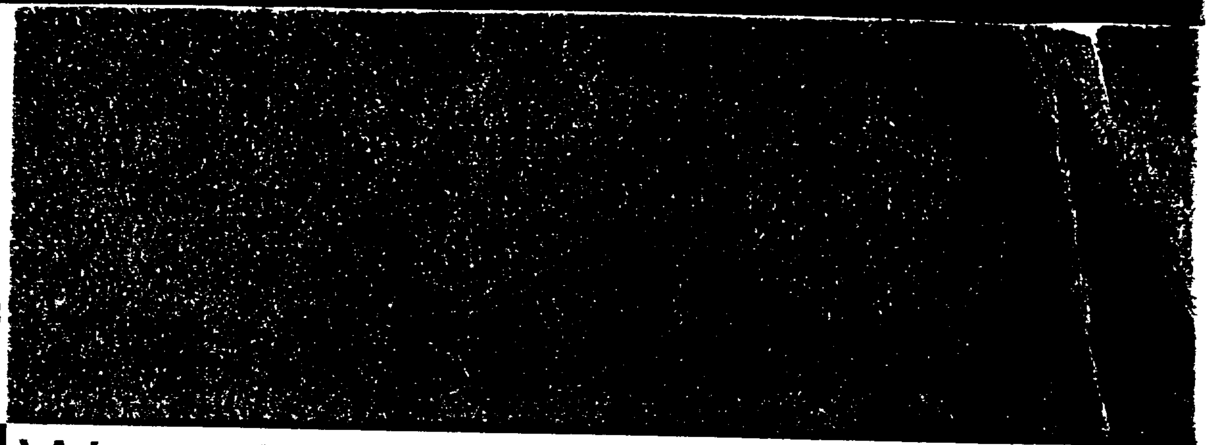
TEXAS DEPARTMENT OF WATER RESOURCES

July 1982



32|33

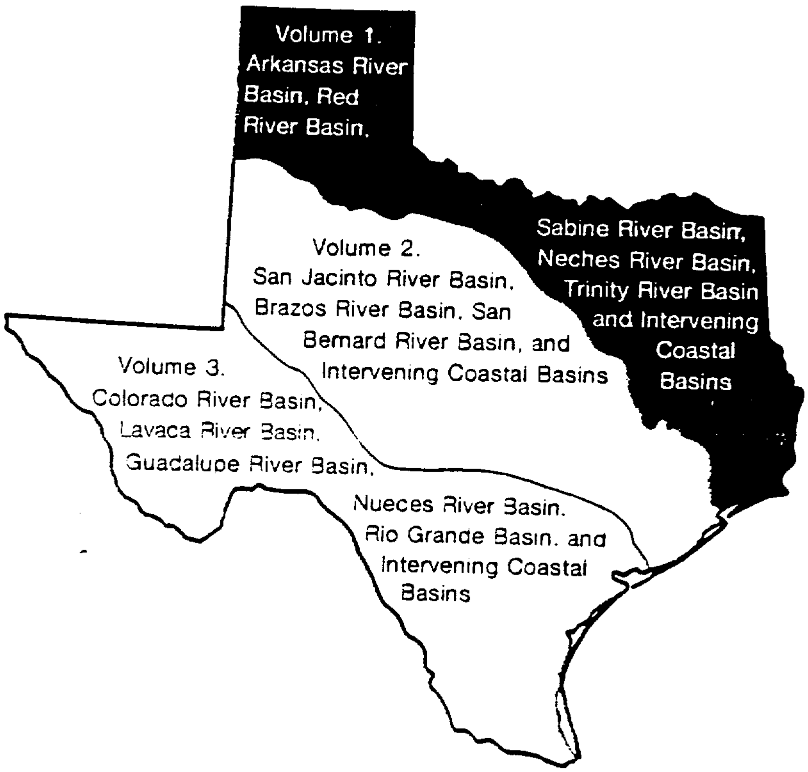
Reference 28



Water Resources Data Texas

Water Year 1990

Volume 1. Arkansas River Basin, Red River Basin, Sabine River Basin, Neches River Basin, Trinity River Basin and Intervening Coastal Basins



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-90-1
Prepared in cooperation with the State of Texas
and with other agencies

08057410 TRINITY RIVER BELOW DALLAS, TX

LOCATION.--Lat 32°42'26", long 96°44'08", Dallas County, Hydrologic Unit 12030105, on right bank at downstream side of bridge on South Loop Highway 12, 1.0 mi downstream from White Rock Creek, 1.5 mi upstream from Fivemile Creek, 6.4 mi southeast of Dallas County Courthouse in Dallas, and at mile 491.8.

DRAINAGE AREA.--6,278 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1956 to September 1961 (monthly records only), October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 365.89 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. Flow is affected at times by eight upstream reservoirs with a combined capacity of 1,714,400 acre-ft, of which 846,200 acre-ft is for flood control. Several cities within the Dallas-Fort Worth metroplex divert water for municipal use and return it to the river as sewage effluents above this station. Low flows are sustained by sewage effluents.

AVERAGE DISCHARGE.--33 years (water years 1958-90), 2,017 ft³/s (1,461,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,000 ft³/s May 4, 1990 (gage height, 34.79 ft); minimum daily, 131 ft³/s Dec. 9, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 25, 1908, reached a stage of 41.1 ft, from information by U.S. Army Corps of Engineers, and is the highest since that date. Floods in 1866 and 1908 reached about the same stage at Dallas.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 87,000 ft³/s May 4 at 0200 hours (gage height, 34.79 ft); minimum daily, 524 ft³/s Oct. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	584	1130	587	887	6510	1770	4460	19800	13700	6090	4600	604
2	583	781	579	725	16900	1080	4790	32600	17300	5850	4710	579
3	571	684	585	720	11200	816	5530	67600	14300	5750	5330	567
4	574	635	592	1060	4530	756	5840	79200	12300	5720	6400	593
5	580	607	598	928	1470	731	5630	65000	12200	5720	8270	607
6	569	631	588	744	1120	726	6590	61700	12800	5770	10300	599
7	606	634	576	702	1020	1850	8390	57700	13300	5860	9050	600
8	558	672	585	681	1410	3560	7540	52300	13400	5670	6500	684
9	552	734	598	659	1000	1740	6380	46900	13500	3430	5250	726
10	552	663	590	656	1640	1180	6880	41800	13500	1040	4810	842
11	542	594	592	645	1390	2710	7220	37300	13300	924	4580	1030
12	548	609	612	659	1080	9850	6530	35000	12900	970	4160	890
13	563	596	598	642	972	14500	6180	32700	12400	1210	3510	787
14	544	594	600	618	851	12100	8910	30000	11700	1050	3220	755
15	537	576	602	632	974	14400	15700	27500	10800	957	3090	681
16	542	594	627	674	1060	10300	16200	25000	9780	967	2730	630
17	542	588	621	750	1000	6130	10700	22300	9210	1430	2470	625
18	610	571	630	2050	748	4540	6070	19500	8960	3030	2100	765
19	617	576	615	7110	760	4490	3910	16800	8810	4220	2020	758
20	569	587	630	9640	745	5270	4340	14700	8420	4720	1970	684
21	546	604	621	4770	881	6090	6900	13400	7860	4820	e1880	759
22	525	890	654	1510	2410	6670	8800	12700	7530	4840	e1600	732
23	525	998	660	978	1910	7170	8440	12900	7070	5300	e1350	680
24	540	715	695	844	1020	7290	9130	13200	6970	5650	e1000	631
25	528	648	760	776	833	6880	9730	13500	7030	5920	e900	616
26	535	643	811	764	777	8180	14000	13300	7080	5490	e860	596
27	530	625	832	758	764	7560	26000	13200	7060	4990	e750	579
28	528	628	752	780	1200	8070	25600	13000	6910	4770	675	570
29	524	627	726	802	---	10500	23000	12800	6780	4650	655	555
30	2210	599	719	739	---	9570	21000	13100	6510	4590	711	543
31	2610	---	937	931	---	6060	---	13000	---	4600	675	---
TOTAL	20944	20033	20172	44834	66175	182539	300390	929500	313380	125998	106126	20267
MEAN	676	668	651	1446	2363	5888	10010	29980	10450	4064	3423	676
MAX	2610	1130	937	9640	16900	14500	26000	79200	17300	6090	10300	1030
MIN	524	571	576	618	745	726	3910	12700	6510	924	655	543
AC-FT	41540	39740	40010	88930	131300	362100	595800	1844000	621600	249900	210500	40200

CAL YR 1989 TOTAL 1658817 MEAN 4545 MAX 61500 MIN 524 AC-FT 3290000
WTR YR 1990 TOTAL 2150358 MEAN 5891 MAX 79200 MIN 524 AC-FT 4265000

e Estimated

Reference 29

TEXAS PARKS & WILDLIFE FISHING search

Water Body Records (T)

[A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z]

ALL TACKLE CATEGORY

Updated 3/12/99

WATER BODY	SPECIES		WEIGHT (LBS)	LENGTH (IN)	DATE	ANGLER	METHOD
Tawakoni	Bass	Hybrid Striped	15.25	28.00	5/16/88	Franklin H Smith	Rod & Reel
Tawakoni	Bass	Hybrid Yellow	3.50	18.00	7/15/89	Lucky Turner	Rod & Reel
Tawakoni	Bass	Largemouth	10.75	24.50	3/8/93	Davey Turner	Rod & Reel
Tawakoni	Bass	Striped	22.25	36.50	7/1/91	Gloria Sahaydak Quam	Rod & Reel
Tawakoni	Bass	White	3.64	15.25	4/17/91	Britt Henson	Rod & Reel
Tawakoni	Buffalo	Smallmouth	52.75	41.00	5/6/95	Gotcher Wilson	Trotline
Tawakoni	Catfish	Blue	40.25	41.00	2/27/97	David Hanson	Rod & Reel
Tawakoni	Catfish	Channel	16.25	32.50	2/21/97	David Hanson	Rod & Reel
Tawakoni	Catfish	Flathead	110.50	60.50	6/5/98	Bryan Eubanks	Trotline
Tawakoni	Crappie	White	3.33	17.75	4/6/98	Bobbie Griffin	Rod & Reel
Tawakoni	Goldfish		3.19	16.00	4/19/94	Jerry Brooks	Rod & Reel
Tehuacana Creek	Bass	Largemouth	5.78	22.00	1/27/94	Rick Rivard	Rod & Reel
Tehuacana Creek	Catfish	Channel	8.06	26.50	1/27/94	Rick Rivard	Rod & Reel
Tehuacana Creek	Sunfish	Green	1.22	9.29	4/21/95	Rickie Rivard	Rod & Reel
Texas & Pacific	Crappie	White	1.94	14.50	5/3/98	Kenneth Allen	Rod & Reel
Texoma	Bass	Hybrid Striped	14.88	31.00	3/22/92	Bruce Maybrier	Rod & Reel
Texoma	Bass	Largemouth	11.06	24.00	12/21/92	Alvin Bouge	Rod & Reel
Texoma	Bass	Smallmouth	6.91	24.00	1/22/96	Yarri Schreibvogel	Rod & Reel
Texoma	Bass	Spotted	4.38	20.50	11/25/88	Chuck Bishop	Rod & Reel
Texoma	Bass	Striped	35.12	39.00	4/25/84	Terry Harber	Rod & Reel
Texoma	Bass	White	3.41	18.00	2/8/94	Robert Blair	Rod & Reel
Texoma	Bluegill		0.56	8.66	10/23/94	Gina Schreibvogel	Rod & Reel
Texoma	Buffalo	Bigmouth	41.50	37.00	6/30/90	Walter M. Cole	Rod & Reel
Texoma	Buffalo	Smallmouth	28.50	35.00	4/27/91	Sandra Wiseman	Rod & Reel

Texoma	Carp	Common	9.25	26.00	5/2/98	Adam James	Rod & Reel
Texoma	Carp	Grass	31.50	39.50	3/24/96	Harold McAlester	Rod & Reel
Texoma	Catfish	Blue	116.00	59.00	4/21/85	C D Martindale	TROTLINE
Texoma	Catfish	Channel	10.07	27.50	9/6/95	Randy Jameson	Rod & Reel
Texoma	Catfish	Flathead	45.65	42.50	4/6/97	Ed Wolfe	Rod & Reel
Texoma	Crappie	Black	2.00	14.88	4/12/96	Yarri Schreibvogel	Rod & Reel
Texoma	Crappie	White	3.23	15.50	3/9/95	William Van Der Giessen	Rod & Reel
Texoma	Drum	Freshwater	34.70	32.25	3/30/95	Billy Walker	Rod & Reel
Texoma	Gar	Alligator	77.50	73.00	6/13/95	Joe Robertson	Rod & Reel
Texoma	Gar	Longnose	22.72	55.00	8/30/91	Mark Wright	Rod & Reel
Texoma	Gar	Spotted	4.15	30.38	7/30/93	John Hardin	Rod & Reel
Texoma	Goldeye		2.31	17.50	5/28/96	Mandy Richmond	Rod & Reel
Texoma	Sunfish	Green	0.75	9.38	1/24/94	Wendy Schreibvogel	Rod & Reel
Texoma	Sunfish	Hybrid Green	0.68	9.50	1/5/94	Wendy Schrievvogel	Rod & Reel
Texoma	Sunfish	Longear	0.18	5.75	9/14/92	John Hardin	Rod & Reel
Timber Creek	Bass	White	1.53	15.63	4/29/93	John Hardin	Rod & Reel
Timber Creek	Bluegill		0.06	4.63	4/29/93	John Hardin	Rod & Reel
Timber Creek	Buffalo	Smallmouth	7.30	22.50	4/27/93	Justin Hardin	Rod & Reel
Timber Creek	Bullhead	Black	0.98	12.75	4/29/93	John Hardin	Rod & Reel
Timber Creek	Bullhead	Yellow	0.17	6.88	4/30/93	John Hardin	Rod & Reel
Timber Creek	Carp		6.00	21.88	4/30/93	Justin Hardin	Rod & Reel
Timber Creek	Catfish	Channel	0.69	12.88	4/30/93	John Hardin	Rod & Reel
Timber Creek	Drum	Freshwater	0.79	12.25	4/27/93	John Hardin	Rod & Reel
Timber Creek	Gar	Spotted	5.80	32.38	4/30/93	John Hardin	Rod & Reel
Timber Creek	Sunfish	Longear	0.15	5.69	4/27/93	Ryan Collins	Rod & Reel
Toledo Bend Reservoir	Bass	Hybrid Striped	15.81	32.50	5/25/87	Johnny Pritchett	Rod & Reel
Toledo Bend Reservoir	Bass	Largemouth	14.69	24.00	3/4/98	Kraig Welborn	Rod & Reel
Toledo Bend Reservoir	Bass	Striped	33.22	41.00	2/8/80	James E Kent Jr	Rod & Reel
Toledo Bend Reservoir	Bass	White	4.25	15.63	9/17/83	Danny L. Statler	Rod & Reel
Toledo Bend Reservoir	Bowfin		19.00	32.50	1/3/75	George E Lord	TROTLINE
Toledo Bend Reservoir	Buffalo	Bigmouth	75.00	42.00	8/7/85	Joe R Walker	TROTLINE
Toledo Bend Reservoir	Buffalo	Smallmouth	78.00	46.00	6/23/92	Travis Thornton	Rod & Reel
Toledo Bend Reservoir	Carp	Grass	51.25	43.25	7/12/97	Darrell Curry	Bow & Arrow
Toledo Bend Reservoir	Catfish	Blue	67.54	46.00	4/12/95	Doug Skinner	Stump Hook
Toledo Bend Reservoir	Catfish	Flathead	97.50	48.00	5/24/91	Otis L. Pleasant	Trotline

Toledo Bend Reservoir	Crappie	Black	3.69	17.75	1/17/85	Fritz Gowan	Rod & Reel
Toledo Bend Reservoir	Crappie	White	2.88	17.25	3/13/98	Geneva Daniels	Rod & Reel
Toledo Bend Reservoir	Drum	Freshwater	31.50	30.00	3/3/95	Freddie Keel	Rod & Reel
Toledo Bend Reservoir	Warmouth		1.09	11.00	4/14/95	William Tawney	Rod & Reel
Towle Park	Bass	White	5.06	20.00	4/26/92	Charles Parlin	Rod & Reel
Town Lake	Bass	Guadalupe	3.01	18.00	8/23/92	Terry Hall	Rod & Reel
Town Lake	Bass	Hybrid Striped	17.78	34.00	1/18/93	Morris Boyd	Rod & Reel
Town Lake	Bass	Largemouth	10.42	25.50	1/31/95	James Garcia	Rod & Reel
Town Lake	Bass	Smallmouth	5.75	22.75	3/16/80	Grant C Hartman	Rod & Reel
Town Lake	Bass	Striped	45.50	44.25	3/2/93	Morris Boyd	Rod & Reel
Town Lake	Bass	White	3.36	19.00	4/2/97	J. Darryl Freeman	Rod & Reel
Town Lake	Bluegill		0.19	5.50	8/2/97	J. Darryl Freeman	Rod & Reel
Town Lake	Buffalo	Smallmouth	59.00	40.50	10/28/97	Gibbs Milliken	Fly Rod
Town Lake	Carp		46.50	40.50	4/2/96	Robert Smith	Bow & Arrow
Town Lake	Catfish	Blue	41.00	42.50	5/12/83	Pete Pattisor	Rod & Reel
Town Lake	Catfish	Flathead	2.64	18.50	7/28/97	Mickey Gardener	Rod & Reel
Town Lake	Drum	Freshwater	9.63	25.00	7/31/96	J. Darryl Freeman	Rod & Reel
Town Lake	Pike	Northern	18.28	41.00	8/29/81	Mike Sharpe	Rod & Reel
Town Lake	Redhorse	Gray	5.46	22.00	4/8/96	Robert Smith	Bow & Arrow
Town Lake	Shad	Gizzard	2.67	18.00	4/12/97	J. Darryl Freeman	Rod & Reel
Town Lake	Sunfish	Hybrid	0.23	6.00	8/5/97	J. Darryl Freeman	Rod & Reel
Town Lake	Sunfish	Longear	0.31	5.50	8/5/97	J. Darryl Freeman	Rod & Reel
Town Lake	Sunfish	Redbreast	0.58	9.00	7/9/93	Steve Lightfoot	Rod & Reel
Town Lake	Sunfish	Redear	2.99	14.00	4/1/97	John Runnels	Rod & Reel
Town Lake	Warmouth		1.30	10.50	7/19/91	Ralph E. Manns, Jr.	Rod & Reel
Town Resaca	Carp		6.48	23.00	5/16/93	Noe Flores	Rod & Reel
Town Resaca	Catfish	Channel	7.00	26.00	5/16/93	Brandon Christ	Rod & Reel
Town Resaca	Cichlid	Rio Grande	0.69	10.00	5/16/93	Jennifer Rubinstine	Rod & Reel
Town Resaca	Sleeper	Bigmouth	0.64	12.00	5/16/93	Regan Messenger	Rod & Reel
Town Resaca	Tilapia	Blue	0.83	11.00	5/16/93	Mateo Leal	Rod & Reel
Tradinghouse Creek Reservoir	Bass	Largemouth	10.60	26.00	1/17/98	David Foster	Rod & Reel
Tradinghouse Creek Reservoir	Bass	White	2.00	15.80	2/25/94	Dan Walling	Rod & Reel
Tradinghouse Creek Reservoir	Bluegill		0.22	6.85	7/1/93	Rick Rivard	Rod & Reel

Tradinghouse Creek Reservoir	Buffalo	Bigmouth	39.00	33.00	2/18/95	Billy York	Rod & Reel
Tradinghouse Creek Reservoir	Buffalo	Smallmouth	42.30	39.00	4/9/97	Donnie Rice	Rod & Reel
Tradinghouse Creek Reservoir	Catfish	Blue	32.00	36.00	4/3/93	Rick Rivard	Trotline
Tradinghouse Creek Reservoir	Catfish	Channel	6.92	24.00	3/5/94	Rick Rivard	Rod & Reel
Tradinghouse Creek Reservoir	Catfish	Flathead	62.00	46.00	7/8/97	Rick Rivard	Trotline
Tradinghouse Creek Reservoir	Crappie	White	1.94	14.75	2/11/94	Rickie Rivard	Rod & Reel
Tradinghouse Creek Reservoir	Drum	Red	29.50	40.00	4/3/91	Brenda Kay Nichols	Rod & Reel
Tradinghouse Creek Reservoir	Gar	Spotted	4.19	29.53	4/11/93	Rick Rivard	Trotline
Tradinghouse Creek Reservoir	Mullet	Striped	9.94	29.37	5/18/94	Bryan Hanus	Bow & Arrow
Tradinghouse Creek Reservoir	Sunfish	Redear	0.34	7.56	7/1/93	Rick Rivard	Rod & Reel
Tradinghouse Creek Reservoir	Tilapia	Blue	3.88	17.00	2/11/94	Rickie Rivard	Rod & Reel
Trammell	Bass	Largemouth	13.50	26.25	2/10/97	Michael Brasvel	Rod & Reel
Trammell	Bass	White	4.38	16.75	5/1/93	Larry Harding	Rod & Reel
Travis	Bass	Guadalupe	3.69	18.25	9/25/83	Allen M Christenson Jr	Rod & Reel
Travis	Bass	Hybrid Striped	13.75	32.25	6/17/89	John Kohler	Rod & Reel
Travis	Bass	Largemouth	14.21	28.00	1/25/93	James Penny	Rod & Reel
Travis	Bass	Smallmouth	4.50	22.00	3/31/92	Robert Hough	Rod & Reel
Travis	Bass	Striped	30.50	42.00	6/7/90	Rudolph Cardenas, Jr.	Rod & Reel
Travis	Bass	White	2.88	18.25	3/21/89	John Gilbert	Rod & Reel
Travis	Bluegill		0.88	10.50	4/14/95	Matt Jeske	Rod & Reel
Travis	Buffalo	Smallmouth	15.00	28.00	12/26/94	Leland Roberts	Rod & Reel
Travis	Catfish	Blue	40.94	42.00	12/13/97	William Hoes	Trotline
Travis	Catfish	Flathead	7.20	25.50	4/20/97	Lance McMullan	Trotline
Travis	Crappie	White	1.43	14.00	4/4/94	Carl Reuter	Rod & Reel
Travis	Drum	Freshwater	3.42	20.25	5/20/95	Peter Jeske	Rod & Reel
Travis	Sunfish	Redbreast	0.24	7.63	5/16/93	Artie Hebert	Rod & Reel
Travis	Sunfish	Redear	0.38	8.25	5/16/93	Artie Hebert	Rod & Reel
Travis	Trout	Rainbow	1.51	16.50	4/19/97	James Harris	Rod & Reel
Trinidad	Bass	White	4.25	18.00	3/7/83	Winston Thornburg	Rod & Reel
Trinity River	Bass	Hybrid Striped	14.10	29.02	6/26/95	Howard Hall	Rod & Reel
Trinity River	Bass	Largemouth	7.13	24.50	3/15/78	Micky Bean	Rod & Reel
Trinity River	Bass	White	3.72	18.00	2/24/95	Gilbert Celaya	Rod & Reel
Trinity River	Bluegill		0.14	5.88	4/7/94	Justin Hardin	Rod & Reel
Trinity River	Carp		4.44	23.50	6/7/94	Rick Rivard	Rod & Reel
Trinity River	Carp	Grass	12.50	31.00	6/16/91	PaPa Earl	Rod & Reel
Trinity River	Carpsucker	River	2.10	16.25	6/18/96	Del Sowders	Rod & Reel

Trinity River	Catfish	Blue	76.00	45.00	4/14/91	Richard C. Jordan	Rod & Reel
Trinity River	Catfish	Channel	1.75	16.50	6/15/94	Del Sowders	Rod & Reel
Trinity River	Catfish	Flathead	58.00	53.00	7/21/77	Dean Brown	Rod & Reel
Trinity River	Crappie	White	2.50	15.40	2/8/95	Rick Rivard	Rod & Reel
Trinity River	Drum	Freshwater	1.25	13.58	6/7/94	Rick Rivard	Rod & Reel
Trinity River	Gar	Alligator	162.50	84.00	9/15/91	Bobby J. Fly	Rod & Reel
Trinity River	Gar	Longnose	82.00	77.00	5/13/90	Rance E. Allen	Bow & Arrow
Trinity River	Gar	Spotted	1.98	23.25	6/2/93	John Hardin	Rod & Reel
Trinity River	Sunfish	Green	0.20	7.00	4/17/95	Justin Hardin	Rod & Reel
Trinity River	Sunfish	Longear	0.14	5.94	4/7/94	John Hardin	Rod & Reel
Trinity River	Warmouth		0.50	7.50	2/8/95	Rick Rivard	Rod & Reel
Tule Creek	Bass	White	3.25	18.25	4/18/92	S. J. Stormes	Rod & Reel
Twin Buttes Reservoir	Bass	Largemouth	14.25	26.00	8/24/91	Greg H. Benson	Rod & Reel
Twin Buttes Reservoir	Bass	Smallmouth	5.31	22.00	5/26/90	Barry Bennett	Rod & Reel
Twin Buttes Reservoir	Bass	Striped	4.39	22.50	2/13/98	John Dennis	Rod & Reel
Twin Buttes Reservoir	Catfish	Blue	50.37	43.50	3/29/92	Courtney Woehl	Trotline
Twin Buttes Reservoir	Catfish	Flathead	63.50	47.00	3/24/91	Wayne Peck	Rod & Reel
Twin Buttes Reservoir	Walleye		8.25	29.50	9/4/82	Kim H. Holmes	Rod & Reel
Tyler	Bass	Largemouth	12.56	25.30	2/13/87	Argus Cathey	Rod & Reel
Tyler	Bluegill		0.61	9.00	4/27/98	Ana Bonner	Rod & Reel
Tyler	Catfish	Blue	26.10	37.00	11/9/95	Joe Smith	Floatline
Tyler	Catfish	Channel	20.44	34.38	3/18/89	Fred Garrett	trotline
Tyler	Catfish	Flathead	74.00	50.50	10/12/93	John Carter	Rod & Reel
Tyler	Crappie	Black	1.36	13.00	10/3/94	Jeff Adams	Rod & Reel
Tyler	Crappie	White	2.33	16.25	11/23/96	Richard Brands	Rod & Reel
Tyler	Drum	Freshwater	17.38	29.75	6/5/94	Michael Baker	Rod & Reel
Tyler	Pacu	Red-bellied	3.09	15.50	7/19/95	Jason Daniels	Rod & Reel
Tyler	Pickerel	Chain	2.48	22.00	1/27/97	Billy McFarland	Rod & Reel
Tyler	Sunfish	Redear	0.76	9.50	6/23/97	Craig Bonner	Rod & Reel
Tyler State Park	Sunfish	Redbreast	0.56	7.87	12/2/95	Del Sowders	Rod & Reel
Tyler State Park	Sunfish	Spotted	0.07	4.00	8/26/92	John Hardin	Rod & Reel
Tyler State Park	Warmouth		0.46	8.50	4/7/95	Del Sowders	Rod & Reel

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z]

For more information contact Angler Recognition Awards Program Coordinator:
Email: mailto:jknight@tyler.net
Telephone: (903) 566-1615
Mail: 11810 FM 848, Tyler, Texas 75707.

Please send comments, suggestions, or questions to:

TEXAS PARKS & WILDLIFE
4200 SMITH SCHOOL RD. AUSTIN, TX 78744
Last Revision Date: March 03, 1999

Last Revision: April 15, 1999

TEXAS PARKS & WILDLIFE **FISHING** search

98 Stocking Report

Filter

Current Filter: [Waterbody Name] = 'TRINITY RIVER'

Where "Waterbody Name" is highlighted, indicates a link to more detailed descriptions including a lake map, access points, what to fish for, nearby state parks, and more!

Where "Fish Name" is highlighted, also indicates a link to more detailed descriptions including biology, distribution, description, and an image of the fish.

Press the "Filter" button to submit another fish stocking search. DO NOT use the Back button.

Waterbody Name	Fish Name	Stocking Date	Number Stocked	Stage
TRINITY RIVER	Paddlefish	5/26/98	3890	Fingerling
TRINITY RIVER	Paddlefish	5/27/98	3544	Fingerling
TRINITY RIVER	Paddlefish	5/28/98	3215	Fingerling
TRINITY RIVER	Paddlefish	6/15/98	4999	Fingerling
TRINITY RIVER	Paddlefish	6/15/98	5000	Fingerling
TRINITY RIVER	Paddlefish	6/16/98	4998	Fingerling
TRINITY RIVER	Paddlefish	6/16/98	4996	Fingerling

Please send comments, suggestions, or questions to:
TEXAS PARKS & WILDLIFE
4200 SMITH SCHOOL RD. AUSTIN, TX 78744
or click on the address to send an E-mail message.

Reference 30

THE UNIVERSITY OF TEXAS AT AUSTIN
BUREAU OF ECONOMIC GEOLOGY

TO ACCOMPANY MAP—DALLAS SHEET—
GEOLOGIC ATLAS OF TEXAS

GEOLOGIC ATLAS OF TEXAS
DALLAS SHEET

GAYLE SCOTT MEMORIAL EDITION

VIRGIL E. BARNES, Project Director

1972
Revised 1988

CRETACEOUS

Upper Cretaceous

Ko

Ozan Formation ("lower Taylor marl")

Clay, calcareous, silt and sand content increases upward, montmorillonitic, blocky, conchoidal fracture, medium gray; some glauconite, phosphate pellets, hematite nodules, and pyrite nodules; some very thin limestone lenses locally in lower part; weathers light brownish gray with poor fissility, grades upward to Wolfe City Formation; marine megafossils; thickness 500± feet

Kau

Austin Chalk

Upper and lower parts, chalk, mostly microgranular calcite, massive, some interbeds and partings of calcareous clay, thin bentonitic beds locally in lower part, lower part forms westward-facing scarp; light gray. Middle part, mostly thin-bedded marl with interbeds of massive chalk, locally burrowed, marcasite-pyrite nodules common, light gray. Weathers white, marine megafossils scarce, thickness 300–500 feet, thins southward

Kef

Eagle Ford Group undivided

North of Hill County, shale, sandstone, and limestone; shale, bituminous, selenitic, with calcareous concretions and large septaria; sandstone and sandy limestone in upper and middle parts, platy, burrowed, medium to dark gray; in lower part bentonitic; hard limestone bed marks base in Ellis and Johnson Counties; locally forms low cuesta; thickness 200–300 feet

Kwb

Woodbine Formation

Sandstone, some clay and shale. Upper part, mostly sandtone, fine grained, well sorted, in part tuffaceous, ripple marked, large scale cross-bedding, reddish brown; near top some sandstone with large discoid concretions, medium to coarse grained, friable; some shale, jarositic, gray, fissile; some marine megafossils, oyster reefs locally. Middle part, mostly sandstone, fine grained, cross-bedded; some interbeds of clay, carbonaceous, in part sandy, gray to brown. Lower part, interbedded sandstone and clay; sandstone, fine grained, very thinly bedded to massive, some beds of ironstone and ironstone conglomerate, white, red, brown; clay, sandy, gray to brown; channeled locally. Thickness 175–250 feet, thickens northward

Lower Cretaceous

Kgm

Grayson Marl and Main Street Limestone undivided

Mostly Grayson Marl, *mostly calcareous clay and marl, blocky, yellowish gray and medium gray; some 0.25–1.0-foot limestone beds in upper one-third, very fine grained, fossiliferous; weathers yellowish brown, forms gentle slope; thickness 60–100 feet, thins northward*

Main Street Limestone, *medium grained, chalky, some 6–8-foot units of calcareous shale, thin bedded to massive, distinctly bedded to wavy bedded and nodular, yellowish gray; weathers light gray to white; thickness 20–35 feet, thins northward*

Reference 31

United States
Environmental Protection
Agency

Office of Emergency and
Remedial Response
Washington DC 20460

EPA/540-R-92-021
PB92 - 963375
September 1992

Superfund

9345.1-05

Guidance for Performing Site Inspections Under CERCLA

Interim Final

Reference 32

Michelle Brown
Print Originator's Name
Ecology and Environment, Inc.

RECORD OF COMMUNICATION

Conversation with: TPWD	Date 08/03/99 (Mo) (Day) (Year)
Name: Ken Kosalski (spelling?)	Time: ~ 3:00 AM/PM
Address:	[X] Originator Placed Call
Phone: 1-512-389-4505	[] Originator Received Call

Subject: fishing in the Trinity

Discussion: Asked if he could give me an estimate of the pounds of fish caught from the ~~X~~ MB Trinity, south of Dallas, each year. He said that TPWD does no keep any records of the amount of fish caught in rivers, only lakes (reservoirs). Suggested I call Clell Guest, a local Dallas official. 817-732-0761.

Clell confirmed Ken's ~~re~~ MB response. No records available.

Follow-Up-Action:

Originator's Signature Michelle Brown

Reference 33

Frederick Douglass Elementary School

226 N. Jim Miller Rd., 75217

Principal	**Ellen Perry**
Phone	**309-7180**
Parent Contact	**Pat Rhoden**
Phone	**391-9314**
Counselors	
Grades	**PreK-3**
Enrollment	**570**
Average Class Size	**18**
School Colors	**Red and black**
Mascot	**Dolphins**

School Sequence

Grades 4-6:
Burleson
Middle Schools:
Comstock
High Schools:
Spruce

Outstanding Features & Programs

- Bilingual
- Reading Is FUNdamental (RIF)
- Chapter I
- Special Education Resource Room
- Team Teaching
- Physical Education
- ESL
- Laureate
- Accelerated Learning Curriculum
- School-Centered Education
- Computer Program
- Texas Successful Schools Awards

Extracurricular Offerings

- Scouting program
- Field trips
- Jump for Heart

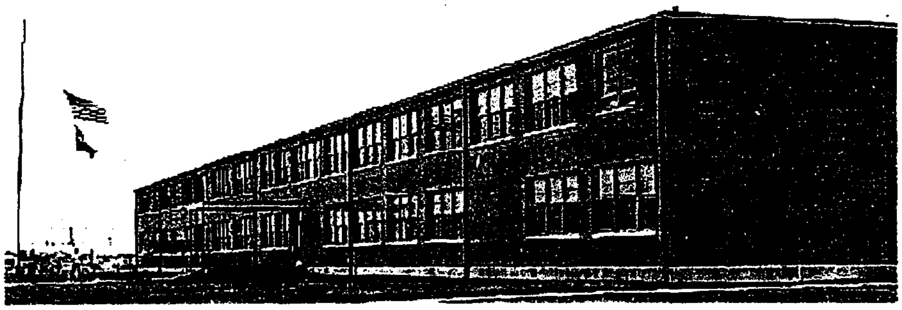
Special Incentives

- Award for good citizenship
- Field Day
- Award for perfect attendance

Faculty Information

- Outstanding teachers
- Many with advanced degrees
- Computer literate

W. A. Blair Elementary School



7720 Gayglen Drive, 75217

Principal	**Glenda Baylor**
Phone	**309-7100**
Parent Contact	**Wanda McBeth**
Phone	**391-1376**
Grades	**PreK-6**
Enrollment	**680**
Average Class Size	**[K-4] 22, [5-6] 26**
School Colors	**Black and gold**
Mascot	**Panther**

School Sequence

Middle Schools:

Comstock

High Schools:

Spruce

Outstanding Features & Programs

- Pre-kindergarten
- Special education
- Basics program
- Laureate Program
- Self-contained program
- Physical education (4-6)
- Math program
- Physical education (K-3)
- ESL class

Extracurricular Offerings

- Resource speakers
- Field trips
- Programs featuring pupils
- Junior Red Cross

Special Incentives

- Attendance Ribbons (six weeks)
- Field Day
- After School Recreation Program
- Spelling Bee Contest
- Awards assembly
- Honor Roll Awards

Faculty Information

- 47% advanced degrees

Reference 34

ST-96-20R Estimates of Housing Units, Households, Households by Age of Householder, and Persons per Household: July 1, 1996

The documentation is located at the end of the data file.
These data supersede those released to the public with Press Release CB97-112, July 7, 1997 and data released with Product Announcement CB96-166.

Due to new information these estimates were revised. The revisions included small changes to the estimates of housing units and the population per household. The household estimates were not affected.

Source: Population Estimates Program, Population Division, U.S. Bureau of the Census.
Contact: Statistical Information Staff, Population Division, U.S. Bureau of the Census.

Internet release date: July 7, 1997
Revised release date: August 21, 1997

(In thousands.)

U.S., region, division, and state	Total housing units	Total house-holds	Households by age of householder: 15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over	Persons per household
United States........	109,800	98,751	5,220	18,441	23,046	18,337	12,326	21,381	2.62
Northeast.............	21,530	19,298	719	3,433	4,454	3,651	2,475	4,567	2.60
New England.............	5,789	5,078	203	964	1,197	954	602	1,158	2.54
Middle Atlantic..........	15,742	14,219	516	2,469	3,256	2,697	1,873	3,409	2.61
Midwest................	26,014	23,390	1,264	4,308	5,447	4,260	2,927	5,184	2.59
East North Central.......	18,047	16,339	843	3,021	3,825	3,023	2,061	3,567	2.60
West North Central.......	7,968	7,051	422	1,287	1,622	1,237	866	1,617	2.54
South..................	39,416	34,949	2,003	6,553	7,968	6,430	4,460	7,535	2.60
South Atlantic...........	20,774	18,146	935	3,391	4,102	3,331	2,286	4,102	2.56
East South Central.......	6,776	6,122	352	1,108	1,358	1,134	828	1,342	2.58
West South Central.......	11,866	10,681	716	2,054	2,508	1,965	1,347	2,091	2.67
West..................	22,840	21,113	1,233	4,147	5,177	3,997	2,463	4,096	2.71
Mountain.................	6,691	6,022	417	1,124	1,442	1,137	744	1,157	2.62
Pacific..................	16,149	15,092	816	3,023	3,735	2,861	1,719	2,939	2.75
New England:									
Connecticut............	1,365	1,231	43	222	289	237	152	287	2.59
Maine..................	630	483	25	84	115	91	59	109	2.50
Massachusetts..........	2,547	2,322	88	457	536	432	273	536	2.53
New Hampshire..........	531	439	19	89	115	83	48	85	2.58
Rhode Island...........	427	378	16	70	86	67	43	96	2.53
Vermont................	289	227	12	42	56	45	26	45	2.50
Middle Atlantic:									
New Jersey.............	3,186	2,889	84	492	689	569	380	674	2.71

New York...............	7,392	6,737	251	1,223	1,546	1,296	896	1,524	2.62
Pennsylvania...........	5,163	4,594	180	753	1,021	832	597	1,211	2.55
East North Central:									
Illinois...............	4,724	4,352	207	824	1,025	807	549	942	2.66
Indiana................	2,444	2,209	123	414	510	408	283	472	2.57
Michigan...............	4,067	3,576	183	657	852	676	443	765	2.62
Ohio...................	4,594	4,260	225	769	978	782	550	956	2.56
Wisconsin..............	2,218	1,943	105	357	460	350	238	432	2.58
West North Central:									
Iowa...................	1,197	1,103	66	190	241	190	141	275	2.50
Kansas.................	1,109	982	65	180	226	171	116	224	2.54
Minnesota..............	1,981	1,763	98	341	434	318	206	366	2.58
Missouri...............	2,374	2,052	113	373	461	364	264	478	2.54
Nebraska...............	699	631	43	113	143	109	76	147	2.54
North Dakota...........	291	247	18	44	55	40	30	60	2.51
South Dakota...........	316	273	19	46	62	45	33	68	2.59
South Atlantic:									
Delaware...............	318	276	13	56	65	50	34	58	2.56
District of Columbia...	268	231	10	50	50	42	29	50	2.17
Florida................	6,771	5,648	274	920	1,161	940	714	1,640	2.50
Georgia................	3,021	2,723	164	575	665	526	327	465	2.64
Maryland...............	2,049	1,871	74	370	471	373	228	356	2.65
North Carolina.........	3,197	2,796	157	547	628	514	362	589	2.54
South Carolina.........	1,604	1,376	75	258	311	262	182	289	2.62
Virginia...............	2,752	2,511	131	511	603	489	308	469	2.58
West Virginia..........	793	714	38	104	148	135	103	187	2.50
East South Central:									
Alabama................	1,814	1,624	96	290	354	296	221	367	2.58
Kentucky...............	1,638	1,478	85	265	330	275	201	322	2.56
Mississippi............	1,083	979	57	176	216	175	133	222	2.70
Tennessee..............	2,240	2,041	114	377	459	388	273	431	2.54
West South Central:									
Arkansas...............	1,077	951	59	162	195	169	130	236	2.58
Louisiana..............	1,780	1,572	96	283	364	294	211	324	2.69
Oklahoma...............	1,453	1,265	88	218	272	226	170	291	2.54
Texas..................	7,556	6,894	473	1,391	1,677	1,276	836	1,240	2.71
Mountain:									
Arizona................	1,890	1,687	114	323	381	299	204	366	2.57
Colorado...............	1,640	1,502	96	282	391	306	182	246	2.49
Idaho..................	481	430	35	73	100	81	54	86	2.72
Montana................	377	341	23	50	80	67	46	75	2.51
Nevada.................	691	619	36	122	145	119	83	115	2.54
New Mexico.............	711	619	39	108	151	118	81	122	2.72
Utah...................	692	639	60	138	149	110	71	112	3.08
Wyoming................	209	184	15	28	46	36	24	35	2.56

Pacific:									
Alaska.................	242	214	17	41	64	49	24	20	2.75
California.............	11,827	11,101	574	2,306	2,747	2,067	1,253	2,153	2.81
Hawaii.................	433	389	16	61	96	79	49	87	2.96
Oregon.................	1,343	1,249	76	209	294	248	150	273	2.51
Washington.............	2,304	2,139	133	407	532	417	242	406	2.53

Note: Consistent with April 1, 1990 census counts, which include count question resolution corrections processed through December 199

Documentation notes:

Age - The age of individuals is in terms of age at their last birthday.

Census Regions and Divisions - The Census Bureau delineates two sets of sub-national regions that are formed of states. This two-tiered system of regions consists of 9 census divisions nested in 4 census regions. The Northeast region includes the New England division: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont; and the Middle Atlantic division: New Jersey, New York, and Pennsylvania. The Midwest region includes the East North Central division: Illinois, Indiana, Michigan, Ohio, and Wisconsin; and the West North Central division: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. The South region includes the South Atlantic division: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia; the East South Central division: Alabama, Kentucky, Mississippi, and Tennessee; and the West South Central division: Arkansas, Louisiana, Oklahoma, and Texas. The West region includes the Mountain division: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming; and the Pacific division: Alaska, California, Hawaii, Oregon, and Washington.

Household - A household includes all persons who occupy a housing unit. A household consists of a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements.

Householder - One person in each household is designated as the householder. In most cases, this is the person, or one of the persons, in whose name the home is owned, being bought, or rented. If there is no such person in the household, any adult household member 15 years old and over could be designated as the householder.

Housing Unit (Census) - A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from the outside of the building or through a common hall. The April 1, 1990 census count of housing units is the number of housing units in an area as reported in the 1990 Census of Housing, or as subsequently revised. Revisions to an area's 1990 census count of housing units may occur as the result of (1) post-1990 census corrections of political boundaries, geographic misallocations, or documented underenumerations or overenumerations, and (2) geographic boundary updates made subsequent to the 1990 census, which include annexations, new incorporations, mergers, etc. The closing date for these two forms of revisions applied to this set of estimates was December, 1994.

Housing Unit (Estimate) - Estimates of the number of housing units are calculated by updating the number of housing units from the 1990 census with data on subsequent gains and losses to the housing inventory. The main data sources for estimating these gains and losses are construction and demolition permits. For areas where permit data are not available, alternative methods are used to estimate the construction and demolition of units. Additional information on the methodology used to produce these housing unit estimates is contained at our Internet site with a URL of <http://www.census.gov/population/www/methodep.html>.

Persons per Household - The number of persons per household is obtained by dividing the number of persons in households by the number of households (or householders).

Population (Census) - The April 1, 1990 census population is a count of the number of persons residing in an area (resident population) as reported in the 1990 Census of Population, or as subsequently revised. Revisions to an area's 1990 census population count may occur as the result of (1) post-1990 census corrections of political boundaries, geographic misallocations, or documented underenumerations or overenumerations, and (2) geographic boundary updates made subsequent to the 1990 census, which include annexations, new incorporations, mergers, etc. The closing date for these two forms of revisions applied to this set of estimates was December, 1994.

Population (Estimate) - The estimated population is the computed number of persons living in an area (resident population) as of July 1. The estimated population is calculated from a demographic components of change model that incorporates information on natural change (births and deaths) and net migration (net domestic migration and net movement from abroad) that has occurred in the area since the reference date, such as April 1, 1990, the date of the 1990 census. Additional information on the methodology used to produce these population estimates is contained in Current Population Reports P25-1127 and at our Internet site with a URL of <http://www.census.gov/population/www/methodep.html>.